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## SELECTED PAPERS.

### *On the Comparative Infrequency of Urinary Calculi among Seafaring People.* By A. COPLAND HUTCHISON, Esq. Surgeon Extraordinary to his royal highness the Duke of Clarence, Surgeon to the Westminster General Dispensary, and late Surgeon to the Royal Naval Hospital at Deal.

[From the Medico Chirurgical Transactions, Volume IX.]

ON perusing Dr. Marcet's valuable essay on the chemical history of the different species of Urinary Calculi, and the medical treatment of the diseases consequent thereon, I was pleased to find that he had embraced the subject of the comparative frequency of calculous disorders in certain countries and districts, although he candidly acknowledges, that it still remains for future inquiries to discover, whether the frequency of stone cases in one particular district over that of another, be imputable to some peculiarities in the habits and occupations of its inhabitants, or to locality of situation and climate.

Impressed with the importance of the subject, as it regards a knowledge of the disorder, its pathology, and treatment, which such an inquiry cannot fail materially to promote; and feeling it to be the duty of every professional man to contribute the result of his observations in aid of an investigation so

ably commenced, I beg leave to submit to the attention of the society a few remarks on the comparative infrequency of calculous disorders among seafaring people. I feel myself the more strongly impelled to the task, from having noticed the circumstance many years ago, and from the distinguished author of the above essay not having devoted any portion of his work to the consideration of a class of men, to the treatment of whose diseases my attention has been principally directed for a period of sixteen years.

The number of seamen and marines annually voted by parliament to man the British navy, from January 1800 to the 31st of December 1815, has, on an average, amounted to 132,000. Now if we take into consideration the vast expenditure of human life by battle, disease, and various other casualties, and which unavoidable loss is necessarily required to be constantly replaced, the total number cannot be estimated at less than 162,000, making an annual fluctuation of 30,000 new raised men to supply the deficiencies; but we must bear in mind, that nine-tenths of this number were men who had served at sea from a very early period of life, or, in other words, were old and experienced seamen.*

I have taken considerable pains to ascertain the prevalence

* The number of men lost to the service from various causes during three of the last years of the war I procured at the admiralty office, and is as follows:

| | |
|---|---|
| In 1811 . . . . . | 33,898 |
| 1812 . . . . . | 27,009 |
| 1813 . . . . . | 26,049 |
| Seamen and marines voted by parliament for each of these three years . . . . . | 145,000 |

The average loss of these years gives only about 29,000 in place of 30,000 as stated in the text; and according to the number voted it makes a waste of about one in five; but in these three years the war was chiefly conducted at home, the number of ships serving on unhealthy stations was considerably reduced, and during this period no general action had been fought at sea. There is another circumstance which caused a greater waste in the earlier years of the war than has been here stated from documents, namely, the very little prospect that appeared to the seamen of any termination to hostilities, which certainly influenced the men to desert in greater numbers than in the last years of the war, when the probability of a speedy termination of their labours and consequent liberation was at hand.

of calculous disorders in the naval service; and the result of my inquiry is, that out of the mass of individuals of which it is composed, only *eight cases* have occurred in the period of the *sixteen years* before specified, all of whom had been operated upon in the naval hospitals of Haslar, Plymouth, or Deal, and of whom one only died. In the other royal hospitals, namely, Yarmouth and Peignton, no patient labouring under urinary calculus having been admitted, I have purposely omitted taking them into the account, as well as the foreign hospitals of Halifax, Jamaica, Antigua, Barbadoes, Gibraltar, Malta, the Cape, and Madras; being satisfied, after the strictest examination, that the operation of lithotomy had never been performed at any of these establishments. If cases of this kind had occurred abroad, and owing to the unfavourable nature of the climate or other causes, the surgeons had deemed it not advisable to operate, the patient so circumstanced would have been forwarded to the great naval hospitals at home; and, therefore, we shall be fully warranted in concluding, that eight cases of stone only, had really occurred, among the vast mass of seamen and marines composing our naval force at home and on foreign stations during that eventful era, that is, between January 1800 and December 1815.

The commissioners for conducting the sick and wounded department of the navy, with their accustomed liberality, directed that I should be furnished with the subjoined document, showing the total number of seamen and marines received into the three hospitals during the above sixteen years, exclusive of soldiers, Russians, and prisoners of war, making the grand total of 96,000; which, on deducting in round numbers 10,000 for gunshot wounds, accidents, &c. admitted into the hospitals beyond the average number of such cases received into the London and provincial hospitals, on account of the peculiar service to which the naval hospitals are appropriated, gives only one calculous case in 10,750 patients.

VICTUALLING OFFICE, 23d MARCH, 1818.

## AN ABSTRACT

Showing the number of sick and wounded seamen received into Haslar, Plymouth and Deal Hospitals, between the 1st of January, 1800, and the 31st of December, 1815.

| Year. | 1800 | 1801 | 1802 | 1803 | 1804 | 1805 | 1806 | 1807 | 1808 | 1809 | 1810 | 1811 | 1812 | 1813 | 1814 | 1815 | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Haslar | 4835 | 2781 | 1925 | 1144 | 1496 | 1727 | 1900 | 1892 | 1907 | 2521 | 3236 | 3273 | 3018 | 2890 | 3056 | 2442 | 40,043 |
| Plymouth | 6028 | 4683 | 2111 | 1420 | 3596 | 3490 | 3137 | 1897 | 2453 | 2624 | 3019 | 2660 | 2806 | 2917 | 3644 | 1967 | 48,452 |
| Deal | 965 | 538 | 92 | 226 | 548 | 554 | 391 | 357 | 562 | 781 | 625 | 347 | 658 | 585 | 584 | 589 | 8,202 |
| | | | | | | | | | | | | | | | | Grand Total, | 96,697. |

By order of the Board,

(Signed) J. T. LEE.

Dr. Marcet states the proportion of stone cases received into the different British and Continental public hospitals, Norwich alone excepted, to be *one* for every *three* or *four hundred* patients of all descriptions admitted. In the Norwich hospital it appears to be *one* in every *thirty-eight* cases, a proportion prodigiously great, and which places in a striking point of view, the untoward prevalence of this afflicting malady in the Norfolk district over that of every other throughout Europe; as far, at least, as our present knowledge extends, from whatever cause that extraordinary circumstance may arise. The paucity of stone cases occurring in tropical climates has also been remarked by Dr. Marcet; and as far as the fact already stated goes, of no patients labouring under the disease in question having been admitted into our foreign hospitals, it tends to strengthen the observation.

Of the eight cases of calculous concretions before mentioned, as having occurred out of the vast mass of patients admitted into our naval medical establishments in England, two were boys about fourteen years of age, who had laboured under symptoms of stone for some years previously to their admission into the service, and into which they had recently entered, expressly for the purpose of deriving benefit from our magnificent institutions; one was a marine, about twenty-two years of age, who had been at sea a few months only; three were adult seamen, and the seventh a marine; but their length of service afloat *could not be at all* ascertained:* the eighth and last case was a warrant officer, advanced in years, who had been serving in ordinary, that is, in a ship in harbour, for a considerable time previously to the operation, and the only case which terminated fatally.

For these short historical particulars I am chiefly indebted to my friend Dr. Baird, inspector-general of naval hospitals, who, with his wonted zeal for the public service, furnished me with the above facts.†

* Since this paper was sent to the press, the author has ascertained that one of these patients, cut by Dr. Veitch at Plymouth Hospital, was a Prussian by birth.

† Subsequently to the period embraced in these returns, viz. in May 1816, a boy was operated upon in Haslar hospital and recovered, who had been

In the admissions into naval hospitals, both officers under the rank of captain, and privates are included; and excepting the case of one warrant officer, whose diet differs not materially from that of the seamen, it will be found that no officer has undergone the operation of lithotomy in any of these establishments. It is but just, however, to notice the cases of two naval gentlemen, the one a captain, the other an hospital surgeon, who were operated upon in London, as I have been since informed; but whether the first contracted symptoms of the complaint at sea or while residing on shore, I have not been fortunate enough to discover.

It is necessary to observe, that the general food of the superior classes of officers, is infinitely more acescent than that commonly used by the seamen and marines; and also, that they command distinct apartments to sleep in, more cool, and consequently better ventilated than the parts appropriated to the men; but the water for general use is common to every description of persons on board ships of war.

In well regulated messes of the principal officers, their diet differs but little from people on shore; but with respect to other classes of the ship's company the difference is considerable, as they are unavoidably compelled to subsist often, for months successively, on salt beef and pork.

On the ship's arrival in port, the men are amply supplied with good fresh beef, vegetables, and sound table beer while victualling and watering, which, however, in time of war, is generally limited to a very short period, especially when commanded by an active and zealous captain. On those occasions, it is incredible to see what quantities of salt the seamen will use with their fresh beef. During their stay in port, and for some days after, each man is allowed a gallon of good beer; and at other times, when this wholesome beverage can no longer be procured, a pint of wine or half a pint of spirits in lieu thereof: the latter previously diluted with three portions of water, is served out daily to each man at two distinct periods.

turned ashore from a merchant vessel at Barbadoes, and was, by the captain of the Espiegle sloop of war, humanely taken on board and brought to England for the purpose of undergoing the operation.

The beef or pork commonly issued to the ship's company at sea is so highly salted, and frequently kept so long in its briny pickle, that its bland and nutritious juices are in great measure exhausted. Excepting in ships of war of the first and second rate, a portion of one deck only is appropriated to the whole ship's company to sleep in, and this is consequently so crowded with hammocks, and the men so impacted together, fourteen inches in width being the total space allowed to each individual, that some dexterity is requisite to obtain ingress and egress to and from their beds. The lower deck being always the part allotted for repose, the ports are, for the safety of the ship, necessarily closed all night, and the temperature of the surrounding air is thereby so exalted, that the place becomes a kind of steam bath from animal exhalation, the men being literally immersed in their own perspiration.*

Dr. Dobson remarks, that calculous disorders are much more frequently met with in the cyder counties than in other parts of England;† and as it would appear from what has been here advanced, that seamen, who have rarely opportunities of indulging in the use of malt liquors, are in a great measure exempt from urinary concretions, it may therefore be asked, whether all kinds of fermented liquors be not favourable to the production and accretion of such disorders?

From Dr. Marcet's and Dr. Prout's remarks it would appear, that an active and healthy state of the digestive organs is one of the most effectual preventives against the formation of calculi. May it not therefore happen, in the instance of seafaring men, that the peculiarities of their regimen, and especially the great quantities of muriate of soda they habitually take with their food, contribute to produce this effect?‡ or in other words, shall we be justified in imputing to the stimulus communicated to and maintained in the whole chylopoetic

* See sir Gilbert Blane's excellent paper on the comparative health of the navy, published in the sixth volume of the Transactions of this Society; and also, some practical Observations in Surgery, by A. Copland Hutchison, published in 1816, pp. 77 and 78.

† See Dr. Dobson's Commentary on Fixed Air, third edition, published in 1779.

‡ See Dr. Marcet's Essay, p. 176, and Dr. Prout's valuable paper in the eighth volume of the Transactions of this Society, pages 543, 544, 545.

viscera by the muriate of soda, a power to counteract the aggregation of calculous matter in the urinary organs, independently of any direct chemical agency?

It has been already stated, that seamen belonging to ships of war are so closely impacted whilst in their hammocks, that they continue suffused with perspiration during the whole period allotted to repose: and there is also such a perpetual mutation in the various stations appointed to ships of war to cruise in, that few seamen escape the performance of their round of duty in tropical and other hot climates, bearing an equal proportion to the time spent in the more temperate climate of Europe; and consequently there must be a much more profuse discharge from the exhalants on the surface of the body of this class of men, than of those residing in Great Britain or in more northern latitudes.

I am the more particularly induced to notice these circumstances, because it has been ingeniously suggested, among other causes, "whether there may not be some essential connexion between the state of the cutaneous functions and the greater or less prevalence of this class of disorders?"*

That an intimate connexion does subsist between a particular state of the cutaneous functions and a tendency in the urinary secretions to form calculous concretions, I am inclined to believe; but in this early stage of the inquiry into the grounds for such opinion, I deem it more consonant to the circumspection necessary to be observed in speculative medicine, to withhold the view which I have taken of this part of the subject, till confirmed by more certain and conclusive *data* than we at present possess.

With the view of ascertaining, with every degree of accuracy, and through every possible channel from which information could be derived, the validity of the opinion herein maintained, of the almost total exemption of seafaring people from calculous affections, I made due inquiry of sir E. Home and my friends Messrs. Cline, sen. and Astley Cooper, whether, in the course of their extensive practice, both private and public, they could recollect having performed the operation of

* See Marcet's Essay, page 44.

lithotomy on any of the description of persons here alluded to? The two former gentlemen fully answered in the negative, to the best of their recollection at the time; and Mr. Astley Cooper informs me, that he had been consulted a few years back by Admiral B. D——s, then labouring under evident symptoms of stone, but that he had not been operated upon; the stone, however, was ascertained to be of that species called Mulberry, by a portion being broken off by the sound and passed *per urethram**.

Excepting this solitary case, conjoined, however, to that of the captain and hospital surgeon before mentioned, Mr. Cooper stated that no other instance had occurred in the course of his practice. This eminent practitioner also asserts, that the surgeon here alluded to had been affected with calculous symptoms from his very *childhood*.

The circumstance mentioned by Dr. Dobson, page 153, of his work, likewise deserves notice in the present investigation, viz. the rare occurrence of stone cases in the Liverpool hospital, compared to that of other public institutions appropriated, to similar purposes. May not this singularity arise from a great proportion of patients admitted into the hospital of this great emporium of British commerce, being composed of seamen or seafaring people?

The various and concurring facts already enumerated, tend to illustrate and confirm the position we are endeavouring to establish, namely, that there is something in the occupation, food, drink, and general habits of seamen, added to frequent change of climate, which render this class of men more peculiarly exempt from calculous depositions than any other.

The life of a seaman is one of great activity, and often of considerable labour and exertion. I have frequently observed, in common with other officers, that sailors never fail to empty the bladder on the first symptoms of distention; and the facilities afforded them, as far as regards unmixed society

* Admiral B. D. died only about six months ago, and I learn at the Admiralty Office that he had *not* been employed at *sea* for the last twenty years of his life.

and locality, favour greatly this salutary habit. It is also of importance to notice, that no description of people are less subject to dyspepsia*, or more prone to strictures in the urethra.

People of sedentary habits, on the contrary, offer great facility of aggregation and increase to any minute calculous deposition in the bladder; where they gradually acquire magnitude by continual accumulation of fresh matter, so as to render the distress and acute sufferings of the patient intolerable, and compel him to submit to the operation of lithotomy as the only mode of obtaining permanent relief: and hence it is, that lawyers and other studious men who sit much, and are in habits of retention, are said to be more subject to the disease in question, than those devoted to the more active scenes of life and greater muscular exertion†.

To these observations it may be objected, that Calculi are more generally formations of early youth than those of adult or of advanced age; and the men who enter or are impressed into the public service undergo an examination respecting their state of health, and are rejected if found to be labouring under any serious complaint; but when we reflect on the manner of carrying on the surgical examination on these occasions, it will be acknowledged by those best acquainted with the nature of that service, that they are not *particularly* scrupulous as to admissions: besides, it has been shown in the cases of the two boys operated upon, that they entered the navy for the express purpose of getting cured, and consequently took care to conceal their disease. The fact is, that boys are frequently embarked at the early ages of nine or ten years, and when we take into consideration the vast exertions made by officers, and the various impress gangs to man ships of war fitting in harbour, or to keep up their numbers in those already at sea, the validity of the above objections will be greatly lessened, if not wholly removed.

Again, in the number of patients received into the naval hospitals, as compared to the admissions into the different Lon-

* See various parts of Murray Forbes's work on Gravel and Gout.

† See also page 38 of the same work.

don and provincial hospitals, it must not be forgotten, that in the latter, those admitted are composed of both sexes, whereas in the former, the admissions are confined solely to the male sex; and it will be found on a reference to Dr. Marcet's report from the Norwich hospital, (page 26,) that the proportion of females operated upon, is to that of males as *one* to *seventeen.* It is therefore but just that these facts should also have their due weight in balancing the argument.

Moreover, it is not to be omitted, that out of the *eight* cases stated to have been admitted into the naval hospitals from 1800 to 1815, both years included, *three* out of the eight were known to have entered the service labouring under the disease; so that in point of fact, *five* only are justly to be considered as having originated among the vast mass of individuals composing the British navy, in the eventful space of sixteen years, and these years of unexampled efforts and more strenuous exertion than any in British annals.*

In that magnificent and extensive asylum for decayed seamen, the royal hospital at Greenwich, Dr. Robertson, the physician to the institution, informs me, that during his professional attendance there for twenty-seven years, he cannot recollect a single instance of the operation of lithotomy having been performed, and only one case in which symptoms of Calculus were manifest. He states, however, that in dissecting, he discovered small Calculi in the kidneys and ureters of some of the pensioners after death.

The number of mutilated or otherwise infirm seamen and marines accommodated in that noble institution, exclusive of officers, is 2710; and the admissions on an average annually to fill up the vacancies occasioned by death or removal as out-pensioners, is about 213. All ages, from twelve years to the most advanced period of life, are eligible for admission.

From various parts of the preceding premises, then, we may with some degree of probability infer, that animal food, combined with a certain portion of the muriate of soda, in conjunction with farinaceous aliment, on which seamen principal-

* *Five* cases of stone occurring out of 86,000 hospital patients give only *one* in 17,200.

ly subsist, are favourable to the prevention of calculous aggregation.

To acquire this prophylactic property, it may be essential that the animal food should be saturated with salt previously to its use, as we learn from Dr. Wollaston, that when free from saline matter, animal food favours the generation of lithic acid, at least in carnivorous birds*: whether similar effects follow its application to the human stomach, has not yet been ascertained, I believe; but reasoning from analogy, we might be induced to conclude that such would be the consequence.

With respect to the practical inferences to be deduced from almost the total absence of calculous disorders in tropical regions, the exhibition of sudorifics would appear to be indicated, as offering a prospect of preventing the malady altogether, or of alleviating its further progress when once established. It is well known that the cuticular exudations are vicarious with the renal secretions, and the most superficial observer must have witnessed, that when the cutaneous discharges are abundant or increased, micturition is proportionably diminished. Dr. Wilson has remarked, that Dover's powder and tartarized antimony, (which are powerful sudorifics,) when administered to individuals, invariably lessen the quantity of lithic acid in the urine†.

From the foregoing observations it would appear, that exercise is not only conducive to general health, but acts as a preventive to the disease in question, and probably may be used with material advantage even when Calculi are known to exist; the *quantum*, of course, to be regulated by the magnitude or irritation produced by the Calculus on motion.

It is generally believed, that acid and the acescent fluids, such as cyder, malt liquors, and French wines, favour the generation of lithic gravel: if similar results arise from the use of fresh animal food, according to the analogy which Dr. Wollaston's experiments have suggested, farinaceous and that spe-

* See Philosophical Transactions for 1810, page 229.

† See Dr. A. P. Wilson's experiments detailed in an appendix to his book on Fever, &c. pages 494, 500, 527, 529, and 533. See also a treatise on Gravel and Gout, by Murray Forbes, page 235, a work that will be read with pleasure and improvement by all who are interested on this subject.

cies of food opposed to the acescent would necessarily be indicated. On these points, however, I beg to speak with much diffidence and reserve, not possessing sufficient *data* or experience to hazard any thing like decisive opinion: but from the extensive circulation of the volumes and labours of this Society, we may expect sooner or later, that the present subject will receive ample investigation and elucidation*.

*Spring Gardens, Charing Cross,*
*May* 10, 1818.

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*Appendix to the preceding Paper.*

This Society having done me the honour to read in May last, a paper on the comparative infrequency of stone cases among seafaring people, I have since that period, at the request of the President and some members of the Council, made more minute inquiry throughout the medical department of the service, whether any seamen or marines had ever been invalided at the great medical establishments labouring under calculous affection; and the general reply officially returned was, that no records were preserved of the diseases for which seamen had been invalided; but the surgeons positively assert, that no instance had occurred at the royal hospitals of patients so affected being invalided previously to having undergone the operation of lithotomy†.

The period of the recess afforded me, also, the favourable opportunity of extending my researches to every seaport town in the kingdom where public hospitals or dispensaries had been established, and from which I could derive information by

* For some very interesting and valuable information on Urinary Calculi, see a paper by W. Brand, Esq. Secretary to the Royal Society; in the volume of the Philosophical Transactions of London for the year 1808; and some facts illustrative of the above paper by sir E. Home in the same volume: also a paper by Sir Gilbert Blane in the third volume of the Medical and Surgical Transactions.

† All invalidings from the service must necessarily take place at one or other of the naval hospitals at home, whether the objects for survey be patients in the hospital, or are brought on shore from ships in port; and the principal medical officers of the hospital, physicians and surgeons, form part of the surveying officers on all such occasions.

epistolary correspondence or personal application; and I embrace this opportunity to acknowledge publicly the very liberal and polite attention paid to my letters by gentlemen to whom I am personally unknown, answers having been returned to all, excepting from Edinburgh, which will be found conclusive on the subject under discussion, as far as the testimony of gentlemen of the highest professional character can vouch to the fact; and indeed, I presume the general result of this inquiry will now be deemed to have been satisfactorily established.

I shall, therefore, without farther comment, briefly lay before the Society the substance of the different communications received on the occasion.

Dr. Armstrong, physician to the Public Dispensary at Sunderland for nearly twelve years, says that he does *not* recollect having been *once* consulted by any seafaring person affected with Calculus, and that certainly *no operation* for the stone had been performed there during the above period*.

Dr. M'Leod, physician to the Westminster General Dispensary, visited Aberdeen during the last summer, and he informs me, that in the last five years *ten* operations for the stone had taken place at that institution, but that none of the patients were mariners or seafaring people. Notwithstanding the fact, he observes, that Aberdeen is the principal port in the north of Scotland, and the proportion of seafaring people admitted into the hospital consequently large, he cannot call to mind a single instance of a patient labouring under Calculus being admitted during the whole period of his previous attendance as pupil at that institution.

Dr. Ramsay, physician to the Newcastle-upon-Tyne Infirmary, acquaints me, that no record of the occupation of patients has hitherto been kept by the surgeons; that *twenty-one* male cases of Urinary Calculi had been admitted during the last *ten years*, and the surgeons of this establishment state, that to the best of their recollection *not one* of the description of persons under consideration had formed the subject of operation.

From the last annual report of the Newcastle Infirmary, with

* Dr. Armstrong is now physician to the Fever Institution in London, and the author of several valuable medical works.

which I have been favoured, and which now lies before me, it appears that the admission of patients from the 1st of April 1817 to the 31st of March 1818 inclusive, is as follows, viz. in-patients 778, out-patients 636, total 1414.

Dr. Bostock has had the politeness to procure for me the following information from a professional friend on the spot, namely, that the total number of annual admissions into the Liverpool Infirmary has been upon the average for the last *ten years* 1884, that is, 1033 in-patients and 851 out. The number operated upon for the stone in that institution during the above term of years, is stated to be *eight*, and that *none* were of the seafaring class. This fact is very remarkable: that in one of the first commercial cities in the world, no instance had occurred in the space of ten years of a seaman being admitted into the hospital for a calculous complaint; which circumstance *alone* fully demonstrates the *infrequency* of the disease among that class of men.

Dr. Rigby, now physician to the Norwich Hospital, noted for receiving a greater number of calculous cases than any hospital in Europe, acquaints me, that he has been connected with this celebrated institution ever since its first establishment in the year 1772, during which time he witnessed most of the operations performed therein, and that out of between *five and six hundred stone cases*, he *cannot* recollect a *single instance of a mariner having been the subject of lithotomy*. Mr. Hardy, the apothecary, who has resided many years in the hospital, makes the same remark; but he also observes, that the employment or particular occupation of the men admitted, has not been noted in the books. The doctor mentions, however, that he recollects a sailor having been operated upon many years ago by Mr. Lynn in the Westminster Hospital, which, it may be presumed, was about the period of his settling at Norwich. If then the Doctor could so accurately call to mind a solitary case after such a lapse of years, the probability is, that had any similar circumstance or event occurred at the institution where he had so long presided, and where also, I believe, he performed the duties of surgeon, he could hardly fail of recollecting it.

The local position of Norwich, its contiguity to Yarmouth

and other seaport towns on the coast of Norfolk, Suffolk, and Lincolnshire, joined to the celebrity acquired by its surgeons for dexterity and success in operations of lithotomy, the necessary result of constant practice; from these combined circumstances, Norwich seems to be well adapted for, and to court the admission of seamen into its hospital; and yet there is no recollection of any patients of the description under consideration having been subjected to the operation of lithotomy; a still farther and striking corroboration of the infrequency of calculous diseases among seamen.

Mr. Baynton, formerly of Bristol, but now of Clifton, writes me as follows*: "I received the earlier part of my education at the Bristol infirmary, between thirty and forty years since, and at that time resided seven years in the house: I very distinctly recollect that *no sailor was ever cut* for the stone during the period of my residence there; and I am equally certain that no sailor has ever applied to me for the relief of that disease since I have been in the profession. These facts would, perhaps, be of little value to you if they were to stand alone; but as they are accompanied by the very interesting communication of my friend Mr. Smyth, one of the surgeons of the Bristol Infirmary, I hope that the information will assist, &c."

Extract of Mr. Smyth's letter to Thos. Baynton, Esq.

"My dear sir,—It being my intention to publish a memoir on the subject of Calculus, I have taken some pains, and therefore the following may be considered as accurate.

"The Bristol Infirmary has now been established eighty-three years, during the whole of which period there *is no stone case marked 'Mariner,'* which it *would* have been, had a sailor applied to the recommender. There has been no seafaring man cut within my remembrance, which amounts to thirty-one years, and your own recollections will carry you ten years above that. Between us, therefore, we may answer for *forty years.*

"Our stone cases have declined in number very remarkably

* This gentleman is well known to the profession by his valuable publications.

of late years, which is the circumstance that first turned my attention to the subject.

| | | | | Number of patients cut for the stone |
|---|---|---|---|---|
| From the year | 1735 | to 1740 | . . . . | 16 |
| | 1740 | 1750 | . . . . | 61 |
| | 1750 | 1760 | . . . . | 83 |
| | 1760 | 1770 | . . . . | 62 |
| | 1770 | 1780 | . . . . | 40 |
| | 1780 | 1790 | . . . . | 36 |
| | 1790 | 1800 | . . . . | 32 |
| | 1800 | 1810 | . . . . | 16 |
| | 1810 | 1818 | . . . . | 10 |

"From 1750 to 1760, there passed the books as in and out-patients 29,604, and during the last ten years there are probably about 31,000*.

"The cases of lithotomy have come to us comparatively in the following order of frequency, as to the city and neighbouring counties:

"Bristol,
Somersetshire, Bath included,
Wiltshire,
Gloucestershire,
South Wales,
Devonshire.

"No cases from North Wales or Herefordshire."

In addition to the mass of information already adduced, I felt particularly desirous to acquire some knowledge on the subject from Ireland, that no possible source might be left unexplored that could enlighten, or tend to remove doubts on the decision of the question. My friend and neighbour Dr. Boyton, therefore, obligingly endeavoured to supply the wished-for intelligence; but unfortunately he proved unsuccessful, the desired information not being attainable.

* In the 29,640 admissions from 1750 to 1760, the number of stone cases is stated to be 83, which gives *one* in 356; and from the 31,000 admissions during the last ten years, we must deduct two-tenths—the ten stone cases that occurred within the last eight years, we shall then give *one* in 2480: average of the two periods *one* in 585.

Bearing in mind, however, the experiments of Dr. Wollaston, as stated at page 308, I availed myself of the opportunity afforded by meeting last summer one of the professors of the Dublin College, to enquire whether Urinary Calculi were equally prevalent in the sister island as in England; for it is well known that the peasantry of Ireland are seldom able to indulge in the luxury of animal food; and his reply was, that in his opinion, the disease was much less frequent there than in England. Should the aforesaid information prove to be justly founded, the analogy suggested as probably subsisting between carnivorous birds and human subjects, as far as regards the generation of lithic acid, may be considered as pretty well established.

Spring Gardens, Nov. 16, 1818.

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## *Some Observations on one species of Nævus Maternus; with the case of an Infant where the Carotid Artery was tied.*

By James Wardrop, Esq. F. R. S. Ed.

[From the Medico-Chirurgical Transactions, Volume IX.—Part I.]

The structures of the different tumours which have been classed under the general name of Nævi Materni, have not yet been satisfactorily described. Perhaps the subsequent observations may assist in elucidating the structure of one species of the disease; and the case which I have related, where the Carotid artery was tied, may throw some light on the treatment of such tumours.

The Aneurism by Anastomosis has been accurately described by Mr. John Bell, and its character distinctly established. There is another tumour frequently confounded with it, which is entirely confined to the skin, and to which the term Nævus has been usually applied. This form of the disease may with propriety be denominated the *Cuticular Nævus* in order to distinguish it from the others. But the tumour which is the subject of the present observations, and which has seldom been discriminated from the other two, is formed underneath the skin, being situated in the cellular membrane,

between it and the subjacent muscles. From being formed underneath the skin, I shall denominate this species of tumour the *Subcutaneous Nævus.**

I. *History of the disease.*

The Subcutaneous like the Cuticular Nævus is always congenital, and there is no part of the body where such tumours are not met with; though they are most frequently formed about the face.

The limits of the Subcutaneous Nævus can always be accurately determined by the touch; its form is usually flattened; and it is very moveable, lying loose upon the muscles, and not adhering to the skin until it arrives at its advanced stage. The skin covering this species of tumour retains its natural colour until the swelling becomes prominent, when the large vessels shine through, giving the diseased mass more or less of a purple hue.

When the Subcutaneous Nævus is small, it has a doughy and inelastic feel, resembling that of a spermatocele, and seems to have little sensibility.

The bulk of this tumour may be greatly diminished by squeezing it, and it becomes more distended when the child cries or is irritated.

Unlike the anastomosing aneurism, the Subcutaneous Nævus is not attended with distinct pulsation, but there is an universal throbbing which can be felt more distinctly on squeezing it.

When the bulk of the tumour is considerable, the blood-vessels which pass into it are usually of a very large size, rendering the removal of such a tumor by the knife extremely dangerous.

The progress and termination of this disease are various. Sometimes the tumour is very small, and never increases in bulk. Sometimes, like the Cuticular Nævus, it has been ob-

* It may be proper to take notice of the confusion that has arisen among French and English writers in the acceptation of the term *Fungus Hæmatodes*: the French having applied the name Fungus Hæmatodes to the Nævus Maternus as well as to the Anastomosing Aneurism, these two tumours being by them considered as two species of the same disease.

served gradually to diminish in size without any obvious cause. In some cases there is a progressive increase in its bulk, and this is extremely gradual, the disease not assuming a serious aspect until the person be considerably advanced in life. In other instances, particularly if the tumour be small, a process of ulceration commences in the skin, and a greater or less portion of it, as well as of the substance of the tumour itself, ulcerates and sloughs away. This ulcerated surface is finally cicatrized; and though the edges of the original tumour may still remain, yet the progress of the disease seems to be arrested, and it undergoes no alteration in future life. But in some cases this species of tumour has a formidable appearance at birth; the skin, which has already become distended and discoloured, in a few days gives way, a hæmorrhage taking place which soon proves fatal.

### II. *Appearances on dissection.*

The appearances which the Subcutaneous Nævus presents on dissection, demonstrate very satisfactorily the structure, and explain all the phenomena of the disease.

When the tumour is removed from the living body, its size is greatly diminished by the escape of the blood with which it was distended; but if it be of considerable bulk, the vessels passing into it are so large, that by throwing a coloured fluid into one or more of them, the diseased mass is distended nearly to the same size as when it was supplied with blood.

A Child was born with a very large Subcutaneous Nævus on the back part of the neck, situated over the occipital extremity of the left trapezicus and sterno-mastoid muscles. It was of the form and size of half an ordinary orange. The tumour had been daily increasing, and I saw it on the tenth day after birth, when the skin had given way and a profuse hæmorrhage had taken place. Notwithstanding the bleeding, no diminution had taken place in the size of the tumour. It felt warmer than the surrounding skin, was very soft and compressible. Squeezed in the hand it yielded like a sponge, and was reducible to one-third of its original size. In its compressed state it looked like a piece of corrugated skin, its colour being nearly that of sound integument. On removing the

hand the tumour rapidly filled, the skin again becoming purple. There was no distinct pulsation, but a violent throbbing was felt in the tumour, and arteries beating strongly passed towards it.

Conceiving the immediate extirpation of this tumour the only chance of saving the infant, I removed it as expeditiously as possible, and made the incision of the integuments beyond the boundary of the tumour; aware of the danger of hæmorrhage where such tumours are cut into. So profuse, however, was the bleeding, that though the whole mass was easily removed by a few incisions, the child expired.

The tumour having been injected by throwing coloured size into a few of the larger vessels, its intimate structure could be accurately examined.

Several of the vessels, which from the thinness of their coats appeared to be veins, were of a large size, and there was one sufficiently big to admit of a full sized bougie. This vessel is fully as large as the carotid artery of an infant. The boundaries of the tumour appeared distinct, some healthy cellular membrane surrounding it, which was traversed by the blood-vessels. On tracing these vessels to the diseased mass, they penetrated into a spongy structure composed of numerous cells and canals of a variety of forms and sizes, all of which were filled with the injection, and communicated directly with the ramifications of the vessels.

These cells and canals had a smooth and polished surface, and in some parts resembled very much the cavities of the heart, fibres crossing them in various directions like the columnæ tendineæ.

The opening in the skin, through which the blood had escaped during life, communicated directly with one of the large cells of the tumour, and the largest vessel passed directly into that cavity.

Several tumours of the same kind which I have dissected, exhibited a structure precisely similar that which has now been described.

### III. *Treatment of the disease.*

The treatment of this kind of tumour has not usually been very successful. When the swelling has been small, I have already mentioned, that in some instances it has remained throughout life without undergoing any alteration. In other instances it has gradually been absorbed; and in some an ulcerative process has taken place which destroyed the greater part of the tumour, the remaining portion continuing unchanged or being gradually absorbed.

Pressure and cold have been recommended by Mr. Abernethy in the treatment of Nævi; and where these can be advantageously employed, they have in many instances been useful, particularly in the Cutaneous Nævus. Extirpation by the knife has been most commonly resorted to. The operation has frequently been attended with difficulty from the situation of the tumour; but more particularly from the hæmorrhage which accompanies the operation. The loss of blood has often been so great as to produce serious consequences; and in the case already detailed, so large were the vessels, that their division instantly proved fatal. It was the unfortunate result of extirpation in the case which has been detailed, and the easier mode by which the supply of blood to the tumour might be stopped, which led me to propose the practice adopted in the following case.

An infant was brought to London on account of a Subcutaneous Nævus on the left cheek, of a very unusual size. I saw it when it was six weeks old. The base of the tumour then extended from the temple to beyond the angle of the jaw, completely enveloping the cartilage of the ear. Its form was semispherical, the upper part of its surface being flattened from a large portion of the integuments having ulcerated. This ulcer was about three inches in diameter, its surface having a sloughing appearance and accompanied with a good deal of fætor.

The skin on the rest of the tumour was covered with turgid vessels, and the external jugular and angular veins were greatly distended, particularly when the infant screamed, which it generally did both during the day and night at short intervals.

The tumour was soft and doughy, and its size could be much diminished by pressure. It did not pulsate distinctly, but there was a throbbing in it, and the vessels in the neighbourhood beat strongly.

This tumour was about the bulk of a small-sized orange at birth, and had been daily increasing. The ulceration of the skin had existed twelve days, from which there had been several profuse hæmorrhages.

The infant was so extremely emaciated and feeble, that before any means for the cure of the tumour could be adopted, an attempt was made to strengthen the child by giving it at short intervals, and in small quantities, milk, beef-tea, brandy, and opium. These means had the most decided effect in restoring the vital powers, and on the following morning the infant began to suck its nurse, which it had not previously done for some time.

Though this tumour was quite moveable, and its base accurately circumscribed, yet I had learnt, from the operation in the case which has already been detailed, the danger to be dreaded from any attempt to extirpate a Subcutaneous Nævus of such a size, situated in any part of the body. It therefore appeared to me, that as the extirpation of the tumour was impracticable, two important points might be gained by tying the trunk of the common Carotid artery. One of these would be, the immediate effect in arresting the tendency to a fatal hæmorrhage; the other, the reduction of the bulk of the tumour. For as from the dissection of such swellings they appeared to be composed of numerous cavities and canals through which blood is freely circulated, it was reasonable to expect, that by stopping the circulation through the Carotid artery, the flow of blood through this tumour would be interrupted, some of the blood contained in its cavities would coagulate, whilst some might be absorbed, and the cells thus collapse or be obliterated. Besides, it was to be expected, that the sloughing process already begun in this tumour was to go on, and thus the disease to be ultimately destroyed. A process which, I have already noticed, nature sometimes employs very successfully for the removal of such tumours, and which probably might have been completed in this instance without the assis-

tance of art, had not the profuseness of the bleeding accompanying the process threatened the destruction of the child.

The temporary restoration of the child's health and strength by the cordials which had been given during twenty-four hours, afforded perhaps the only opportunity which might have occurred of performing the operation; and as the opinion of Mr. George Young and Mr. Travers, who were consulted in the case, coincided with my own, by their able assistance the operation was immediately performed.

In making the incision through the integuments it was necessary to guard against wounding some large veins. The incision was made along the tracheal edge of the sterno-mastoid muscle, and with a blunt instrument the sheath of the artery was readily exposed. By keeping apart the edges of the incision the sheath was easily slit open, the artery laid bare, and the eye of a probe armed with a small ligature passed under it. The ligature was moderately tightened with a single knot, and the lips of the wound brought together with a stitch and adhesive plaster.

The operation produced no change in the child's countenance, but in a very few hours there was a manifest alteration in the appearance of the tumour. It became soft and pliable, lost its purple colour, and the tortuous veins collapsed.

On the *second* day after the operation, a very remarkable change had taken place in the bulk of the swelling, and the skin covering it had resumed its natural pale colour. The ulceration continued to extend, accompanied with a good deal of fætor; but the child continued to support its strength. The balsam of Peru was now applied with pledgets of lint to the surface of the ulcer, and it had the immediate effect of stopping the process of sloughing and of destroying the fætor.

On the following day the bulk of the tumour continued to diminish; the child was entirely nourished by sucking, and its lips had become florid. There was no swelling or redness of the wound.

On the *fourth* day after the operation, the tumour had considerably increased in bulk, the integuments covering it had become livid, and the adjacent veins turgid. The inosculating branches of the temporal and occipital arteries had greatly in-

creased in size, having become tortuous and very vigorous in their action. On the right side the pulsation of these vessels was strong; but on the left, the side where the tumour was situated, they were much more feeble. A very small quantity of blood had oozed out from the ulcer, and there was a slight fœtor.

After remaining without much alteration, on the *seventh* day the tumour had again evidently diminished both in bulk and in the vigour of pulsation in the arteries. The infant appeared easy, and its general health continued good.

On the *ninth* day the child slept longer than it had done since its birth. The ulceration continued to go on slowly, and the dried crust which was formed in the centre of the ulcer, and which had been considerably elevated, now appeared depressed from the process of absorption going on underneath. The bulk of the tumour had now diminished fully one half.

On the *twelfth* day, it was observed that the child's countenance had been daily improving, and the body, though much emaciated, had the appearance of health; the skin was moist and mottled, the lips red, the bowels regular, and it continued to suck eagerly, getting no other nourishment. The surrounding vessels had become much less turgid, and the skin covering the tumour, as well as that of the ear, had acquired its natural colour. The auricular portion of the swelling had so much diminished, that the cartilage of the ear, which at one time was elevated by the tumour, had nearly fallen into its natural situation. Part of the ulcer, which had rather a granulating appearance, now looked sloughy. A common poultice having been applied for two days, the central portion of the tumour, which appeared like a mass of hardened blood, was softened, and I removed considerable portions of it. It cut like liver, and when washed in water it exhibited a spongy structure. It seemed as if, from tying the carotid artery, the circulation of blood through this portion of the tumour had been arrested, and that which filled the cells had coagulated. The more rapid decay of this than the anterior portion of the tumour, probably arose from the latter being readily supplied with blood by the anastomosing branches of the submental, labial, and other arteries.

On the *thirteenth* day the child became suddenly weaker, refused to suck, and notwithstanding the use of brandy and opium in repeated small quantities, it rapidly sunk, and died on the fourteenth day after the operation, exhausted by the irritation of an ulcer which had now involved the whole surface of an enormous tumour.

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On reviewing the history and treatment of the two cases of Subcutaneous Nævus which have been detailed at some length, the treatment which I have employed in others, together with the structure of the tumour, it appears to me that some general rules may be given for the management of this species of tumour under all the varieties of size, form, and situation which it may assume.

Tumours of this description may be removed by the knife, by ulceration, by absorption, by tying the vascular trunks supplying them, and by ligature; these different means being employed singly or combined as may appear best adapted to the individual case.

When the tumour is small, or even of a moderate size, there is no part of the body from which it may not be with safety removed by the knife. The only circumstance which requires particular attention in performing such an operation is, to avoid cutting into the substance of the tumour; for if this be done, the hæmorrhage is violent; whereas, by making the incisions beyond the diseased structure, the flow of blood is much more moderate, and so completely ceases after the tumour is extirpated, that I have never found it necessary to tie any vessels with a ligature.

Instead of removing the Subcutaneous Nævus by the knife, I have in a few cases imitated the ulcerative process already mentioned, as sometimes coming on spontaneously. I was first led to adopt this practice, from having observed, many years ago, the effect of a strong solution of the corrosive sublimate applied to a Subcutaneous Nævus on a child's back. In this instance, the skin ulcerated and the ulcer spread rapidly, destroying not only the integuments, but the substance of the

tumour. In cases where the knife cannot be with safety used, this mode of treatment may be advantageously employed, and it may in some cases be preferred even where the extirpation of the tumour is practicable.

When a Subcutaneous Nævus is to be removed by ulceration, the process may easily be commenced by destroying a central portion of the skin with lunar caustic or kali; and when the ulceration is once begun, it goes on rapidly until the whole mass is destroyed, merely a discoloured edge being left. Should at any time the ulceration advance too rapidly, and the sore begin to slough, as frequently happens, that process may be powerfully controlled by the application of the balsam of Peru to the surface of the sore; an application which has very successfully been employed in the East Indies in sloughing ulcers, and from which I have in similar cases derived the most decided benefit.*

But there are cases of Subcutaneous Nævus so formidable from their size and situation, that the extirpation of the tumour is impracticable; and where the hæmorrhage accompanying the ulcerative process, when such takes place, is still more dangerous. The two cases which have been narrated illustrate this observation. It is in such tumours where I would advise tying the trunk or trunks of the arteries which supply the tumour. From the result of tying the Carotid artery in the Subcutaneous Nævus on the cheek, and the effects of tying the same vessel where there was an Aneurism by Anastomosis in the orbit†, important advantages are to be expected from the operation:—these are, the diminution of the bulk of the tumour by cutting off its supply of blood; the danger from hæmorrhage being diminished, should the ulcerative process have commenced; and the rendering it practicable to remove such a tumour by the knife, the extirpation of which was previously extremely dangerous or even impracticable.

When the supply of blood to the tumour is arrested, an immediate diminution of its bulk will take place; and whether the ulcerative process or extirpation is to be had recourse to for its ultimate destruction, the size may still be further dimi-

* Asiatic Journal. † See Mr. Travers's Case in Vol. II.

nished by forcibly squeezing out its contents, and afterwards making use of compression by adhesive plasters and bandages.

We are not yet entitled from experience to lay down any rule for deciding, whether extirpation or the ulcerative process should be preferred for the removal of such tumours. It is very probable that a child's health would be less disturbed by extirpating a large tumour of this kind with the knife, than destroying it by the more tedious process of ulceration.

How far it may be advisable in some cases to remove large Subcutaneous Nævi by ligature, I cannot from experience decide. Mr. White informed me, that he thrust a needle through the middle of a very large Subcutaneous Nævus on a child's shoulder, and included each half of the swelling within the noose of a ligature. The operation was attended with complete success.

*Case of Aneurism by Anastomosis of the Finger.*

Whilst considering the treatment of the Subcutaneous Nævus, it may not be out of place here to relate a case, where an ingenious mode of treatment was employed by Mr. Lawrence for the cure of an Aneurism by Anastomosis.

"A woman, twenty-one years old, has been for the last three or four years under the care, first of Mr. Hodgson, and subsequently of myself, for a pulsating tumour of the finger, of the description which has been called Aneurism by Anastomosis. She does not remember its commencement, but rather supposes that it had existed from the time of birth: it increased in size, and began to be troublesome about four years ago.

"The complaint occupied the ring finger of the right hand: there was a general fulness of the first phalanx, but the chief swelling was on the palmar surface and ulnar side of the finger, the circumference of which may probably have exceeded the natural dimensions by one third. The swelling was soft and compressible; the vessels composing it were obscurely discernible through the skin, and gave it a slight reddish or livid tint. There was a sensation of heat in it; and it was rather warm to the touch. It pulsated strongly, just like an aneurism. The digital artery of the corresponding side was very large, and conspicuous by its size and strong pulsation in the palm of the

hand. The veins at the back of the finger, hand, and fore-arm were turgid; and the integuments of the hand, on its dorsal surface, marked by a line of discoloration exactly like that which remains after a bruise. There were painful sensations in the part, extending successively to the hand, fore-arm, arm, and breast: these were so much aggravated by any exertion, that the whole limb was rendered useless for any offices that required a continued effort, however slight.

"Having ascertained that the beating could be stopped entirely by pressing on the radial and ulnar arteries at the same time, but not having been able to satisfy himself that compression of the enlarged digital artery produced this effect, and having tried ineffectually for several months compression and other external means, Mr. Hodgson tied both the trunks first mentioned in January 1815. The consequences of the operation were, an entire cessation of the beating, collapse of the swelling and relief from pain: but these symptoms all recurred in a few days, and were just as bad as before.

"Compression was again unavailing. The pains, which now reached to the shoulder and chest, not only prevented her entirely from following her former occupation of needlework, and rendered the limb useless for most of her ordinary occasions, but greatly disturbed her rest, and made her very desirous of trying some means of relief. When she consulted me, after my friend Mr. Hodgson had left town, I informed her that the amputation of the finger at the metacarpal joint was the only effectual proceeding I could propose; but she immediately and decidedly rejected all idea of such a mutilation. The only other plan that occurred to me was that of dividing all the soft parts by a circular incision close to the palm so as to cut off the supply of blood; and to this her sufferings induced her to submit, although it was represented to her as a painful operation, and of rather uncertain effect.

"Assisted by Mr. George Young and Mr. Samuel Cooper, who had sanctioned the proceeding by their approval, I made a circular cut through all the soft parts, excepting the flexor tendons with their theca, and the extensor tendon. The digital artery, which had pulsated so evidently in the palm of the hand, was fully equal in size to the radial or ulnar of an adult,

and was the principal nutrient vessel of the disease. After tying this and the opposite one, we were much surprised at finding so strong a jet of arterial blood from the other orifices of these two vessels as to render ligatures necessary. This occurrence, however, dissipated any apprehensions that might have been entertained respecting the subsequent supply of the finger. The edges of the incision were brought together by four sutures, but could not be very satisfactorily united, in consequence of the tumour, and indeed the whole finger beyond the cut swelling very considerably. It seemed as if the diseased vessels were distended with blood, which could not be carried back by the veins; for large vascular trunks, turgid with blood, were conspicuous through the skin, which had a deep red and nearly livid colour.

"The wound of the incision healed slowly; the swelling subsided, but did not entirely disappear; and the integuments recovered their natural colour. The pulsation and the pain were put an end to.

"At the present time, there is still a fulness of the part, but without any beating, and some minute red vessels are visible in the skin, like those which are sometimes observed ramifying in the integuments of the face. The venous distention and general pain of the limb are gone, and the natural powers of the part are so far recovered that she can work at her needle for an hour together, and use the arm for most purposes."

December, 1817.

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## *On the Acetometer.* By John and Philip Taylor.

[From the Journal of Science and the Arts, No. XII.]

The uses of acetic acid have been considerably enlarged in this country within a few years by the introduction of some important articles of manufacture, and by the more extended application of some of its compounds to the arts of dyeing and calico printing. Of the former, it may be sufficient to notice the introduction into this country of the manufacture of a very important article of commerce, sugar of lead, which was most successfully done some time since by Charles Macintosh, Esq. of Glasgow, and which has been followed by a general adoption in many parts of the United Kingdom, so

as to supply not only the home, but the export trade, with a substance of extensive demand, heretofore only produced in Holland. This has been followed by a manufacture hitherto peculiar to the French, and for which they were supposed to possess superior facilities—that of verdigris, which is now made in England, so similar in quality to the foreign article, as to leave little room for improvements.

These new uses for acetic acid, together with the increasing demands of the calico printer, to whom the acetate of alumine as a mordant, and the acetate of iron as the base of many colours are essential, was likely to produce exertions to obtain the acid in the most economical manner. Some of these purposes required it but of very impure quality, and the acid obtained by the distillation of wood, was readily applied to them without much care or expense in its preparation, and in this state was found to be sufficiently cheap.

The manufacture of sugar of lead, white lead, and verdigris, by the use of pyroligneous acid, however, required a degree of purification from the tar and peculiar oil with which it is charged in its crude state, that exercised the ingenuity of many of the most skilful manufacturing chemists of this and other countries; and though in England the attempts seem to have been for a considerable time for the most part limited to that degree which its use in manufacture required, yet in France it became an object, which was in great measure attained, to produce it in so pure a state as to fit it for the uses of the table.

In England and in Scotland the same attempt was induced two or three years ago, by the failure in demand of the articles which had given rise to several important establishments, and vinegars prepared from the pyroligneous acid began to find their way into the market, of various shades of purity, and of very different degrees of strength.

Vinegar produced by fermentation, is naturally limited as to the concentration of its acid; and the convenience of commerce has introduced considerable uniformity in this respect. In the purified acid from wood, however, no such limit exists, and as the process by which it is freed from the substances with which it is originally mixed, require that it be first com-

bined with some base, and subsequently separated again by decomposing the compound, it is evident that it may be produced in a great variety of degrees of concentration.

In the application of acetic acid to the purposes of manufacture or the arts, a ready and practicable mode of measuring its strength soon became a very desirable object, and those who employed it had recourse to different means, principally grounded either on its saturation by alkalies, or on the solvent power exerted on some proper substance. As these produced varying results from the unequal skill of the operator, from the difference in the saturating substances, and from the time and circumstances required for the processes, no common standard was to be found, and considerable difficulties occurred in adjusting the question of strength, when acetic acid was passed from one hand to another in the ordinary transactions of business.

We had, in common with other manufacturers, often felt this inconvenience, and being then concerned in an establishment where pyroligneous acid was largely produced and applied, had given considerable attention to the best modes of measuring its strength in various degrees of purity.

When it came into use in competition with common vinegar, the revenue laws which regulate the duty on this article were found defective, inasmuch as they considered it of uniform quality, and attached an equal duty to a given measure, without providing for a difference in strength, which, in some cases, went so far as to exhibit a pure acetic acid of eight times the power of common vinegar. The law was therefore judiciously altered, and the attention of chemists was directed to the subject.

Among others, we were called upon to contribute whatever our experience might furnish, to render the mode of ascertaining strengths certain and easy of execution to an unpractised operator.

We assumed, as a very desirable object for this purpose, that it should be accomplished in some manner that might be similar to those in use among revenue officers, and by some instrument which might be easy to understand and use; and we directed our attention to finding some plan by which the

real quantity of acid might be readily and accurately determined by instruments similar to those which are used for trying spirits, &c.

The difference of specific gravity in acetic acids of various strengths, when pure, is however too small to afford any correct indication, and is also embarrassed by the different proportions of mucilage or saccharine matter in those produced by fermentation. The strength of vinegar in different states of concentration cannot be determined with the same facility, or by the same means as are employed for spirit or the mineral acids; the specific gravities of these latter substances diminish or increase in the ratio of their strengths, by quantities sufficiently great to allow of the formation of an accurate hydrometer for their measurement. This, however, is not the case with acetic acid, the total amount of difference in gravity between the strongest and the weakest being comparatively small, at the same time that many circumstances tend to render this a fallacious guide.

Common vinegar, for instance, indicates a specific gravity of 1025, of which a certain proportion is owing to mucilage &c.; as pure acetic acid of equivalent strength gives only a specific gravity of 1008.5, and pure acetic acid 13 times as strong has only a gravity of 1072. Comparing these with the gravities of sulphuric acid of equal saturating power as common vinegar, and of an acetic acid 13 times as strong, we shall find the difference to be as 1033 is to 1660 = 627 instead of 1008.5 — 1072 = 43.5

and as vinegar is often a mixed fluid, containing mucilage, extractive matter and spirit, it may indicate a high gravity without being strong, or it may have considerable strength without being heavy.

We proposed therefore to construct an instrument to measure *an acquired specific gravity*, and which should be uniformly as the strength of the acid. For this purpose, it was necessary to furnish a substance for previous combination, which should unite with the acid rapidly to complete saturation, and of which the addition in excess should produce no inconvenience. We knew that hydrate of lime possessed these qualities, and that it was well qualified for the purpose, by the uniform state

in which, with sufficient care, it may at all times be prepared and kept. It was only necessary to determine by careful experiments, the relative increments in gravity acquired by the saturation of acetic acid, of known strength, by this substance, and to accommodate to them an instrument of easy application.

We proceeded to these experiments with the assistance of our friend, Mr. Richard Phillips, whose accuracy and skill in chemical research are so well known.

There is one advantage in the use of hydrate of lime for the purpose, which may be mentioned here, which is, that as it constantly precipitates in the saturation a considerable portion of the mucilage, it serves partly to get rid of that difficulty, and to render the compensation which is to be made for that mixture more uniform than it could be in an uncombined acid.

A standard strength of acetic acid was the first thing to be determined, which it was desirable should be such as was usually found in the best common vinegars made by fermentation, or such as paid the previous duty, which it was not intended to increase.

The best vinegar of this kind is called by the makers No. 24, and a variety of experiments had been made upon it by Dr. Thomson, who had found it to contain, at a mean, about 5 per cent. of real acid.

We found by several trials, that different samples of the best vinegars had some variation in this respect; but after many, and we believe, accurate experiments upon them, we thought the proportion assigned by this distinguished chemist to be a fair and proper one, and we assumed it as the standard of vinegar strength, or as it has since been denominated, that of proof acid.

We then proceeded to ascertain its power, by saturating an alkali, selecting for this purpose one which might be referred to at all times with the best chance of being always obtained in an uniform state, and taking therefore well crystallized subcarbonate of soda.

The proof acid containing 5 per cent. of real acid was

found to require 14.5 parts of subcarbonate of soda to each 100 parts of acid, for complete saturation.

These experiments were checked by corresponding ones on oil of vitriol, which has a nearly equivalent power to that of real acetic acid.

The next step was to prepare a series of pure acetic acids, of which the strengths should bear a regular proportion to that of proof acid. We prepared for this, by making a quantity of acetic acid at the highest practicable degree of concentration.

For this purpose, we made acetate of soda, by decomposing pyrolignite of lime by sulphat of soda, and very carefully purified the product by repeated solution and crystallization.

The salt thus obtained in a perfectly white state was dried, and fused in an iron pot until all the water of crystallization was driven off, and it was reduced by the application of considerable heat to a dry powder. This was decomposed in glass retorts by concentrated oil of vitriol, and the acetic acid distilled over. It contained, as usual, a mixture of sulphureous acid, which was separated by adding sugar of lead, and submitting it to another distillation.

To obtain a sufficient quantity this process was repeated three or four times, and in one of them, which did not differ in any essential particular from the others, we were agreeably surprised to find the acid, after standing all night in a low temperature, to have shot into very beautiful crystals of a tabular form, presenting the very rare substance of acetic acid in its glacial state. The crystals, when separated from the liquor in which they formed, and being dissolved, gave no trace of sulphureous acid by the addition of sugar of lead, which it seems to have excluded in crystallizing, as it was found as usual in the remaining uncrystallized part.

When the whole of the strong acid was rectified and put together, its strength was carefully ascertained by saturation with subcarbonate of soda, and was found to be 13.1 times as strong as proof acid, or to contain 65.5 per cent. of real acid.

The glacial acetic acid, which is probably the purest and most concentrated form of which it is susceptible, by the same trials, exhibited a strength 16.6 times greater than proof acid, and contained 83 per cent. of real acid.

From our stock of strong acetic acid, we prepared by dilution a regular series, as compared with proof acid, and each was carefully tried and adjusted by numerous experiments with the alkali, so that all might be depended upon as correct.

As we had found that the stronger samples when saturated with lime would not give a solution sufficiently fluid for a correct determination of its specific gravity, we resolved upon the constant use of an equal bulk of water to dilute each sample of acid to be tried, and this method is adopted with the instrument; as though it may be unnecessary for the weaker acids, yet it is better to do it in all cases, and have a uniform scale of computation, than to risk errors by a variation of the process, and a twofold mode of calculating.

In this way, we found the solutions of lime in a fit state to determine their specific gravity up to 8 times the strength of proof acid, containing therefore 40 per cent. real acid; or, in the language of the revenue, 35 per cent. over proof; and the acetometer now in use goes no higher than this point, which includes all that is likely to be made for common purposes, and a provision for laying the duties on greater strengths is made after another manner.

The following is the series of acids, which were prepared, with the simple specific gravities of each.

| | |
|---|---|
| Proof acid the same strength as best No. 24. vinegar, } Specific gravity | 1008.5 |
| Twice the strength of proof, | 1017. |
| Three times ditto, | 1025.7 |
| Four times ditto, | 1032. |
| Six times ditto, | 1047. |
| Eight times ditto, | 1058. |

These and other intermediate samples were saturated with hydrate of lime, and the specific gravities carefully taken, upon which were grounded the adjustments of the weights of the instrument, various trials were made to compare results, and satisfactory conclusions obtained in this respect.

The increments of gravity were found not to be in a regular series, and a provision had to be made to accommodate the instrument to the variation.

In vinegar which contains mucilage an allowance was

required for the increase of weight from this cause; and as it is clearly impossible to adopt any which should meet all the minute variations in this respect, experiments were undertaken to ascertain whether something of a mean might not be assumed, which should be a sufficiently near approximation for all practical purposes; this seemed to be the case, and it was provided for by adding a weight to be used with the others on the instrument for trying acids, which had not been purified by distillation.

The preceding is an outline of the principle on which the acetometer invented and made for the Revenue is constructed, and the mode in which the adjustment has been settled. The Honourable Board of Commissioners of the Excise directed that numerous trials should be made as to its practical utility, and have ordered its adoption by their officers, for the purposes for which it was intended.

It may be probably very useful to those who employ or purchase vinegars and acetic acid; and we may hereafter, if it be worthy a place in the Journal, offer a description of the instrument and its application.

JOHN and PHILIP TAYLOR.

10 *Bury Court, St. Mary Axe,*
*7th December*, 1818.

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*Further account of the result of an operation for forming an Artificial Pupil.* Extracted from Letters addressed to Professor Scarpa. By J. P. Maunoir, Professor of Surgery at Geneva.

[From the Medico-Chirurgical Transactions, Vol. IX. Part II.]

"Since I communicated to you the result of the operation, performed on the eyes of the Marquis de Beaumanoir, they have undergone some remarkable alterations; of which the following notes copied from my memorandum-book may give you some idea.

"Jan. 24, 1816.—That portion of the crystalline of the right eye which adhered to the new pupil has disappeared. The centre of the opening in the iris of the clear dark colour: it is

obscured in different parts of its circumference by a sort of veil resembling a thin gauze. Contrary to my expectation, and in consequence of the motion of the globe of the eye, I discovered an opake portion of the crystalline about the size of a grain of millet seed, immediately before the pupil. It was independent and moveable, and disappeared after a few minutes. On the marquis's looking down or stooping, it showed itself as before, and again disappeared when he turned his eyes upwards, or held back his head. The progress, in point of transparency, of the pupil, has had little effect on the sight: the retina is weak: the moving of the abovementioned substance in the humours of the eye, must disorder the sight. I trust it will soon be absorbed.

"Feb. 3.—The extraneous body has disappeared. The sight is undoubtedly improved.

"Since that period the progress has been rapid. In the latter end of February he could distinguish with his right eye, aided by a convex glass, capital letters of half an inch long. He can now, with the same assistance, read common writing in characters of an ordinary size. With his left eye, and by taking much pains, he reads a sentence in a common octavo. In his walks he sees the horizon around him, distinguishes objects, and tries to draw landscapes from nature, very imperfectly, as may be supposed. Though he sees with tolerable distinctness any object in the direction of the horizon, he no sooner stoops than every thing becomes obscure.

The gauze-like veil still exists in the pupil of the right eye. In the inferior part is seen a small immoveable fragment of crystalline; probably the same which was perceived rolling in the eye on the 24th of January."

Some months after sending the above account to Professor Scarpa, I sent him also the following.

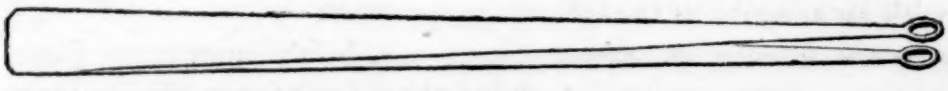
"The marquis de Beaumanoir's left eye had a pupil of a very fine black: that of the right eye had still in its centre something like a thin spider's web. The moveable portion of the crystalline was now become fixed in the lowest part of the pupil.

"The marquis wished for a second operation which might

destroy what he considered the chief remaining obstacle to perfect vision. I performed it in the following manner.

"The cataract knife of Richter was plunged, not in the direction of the tangent, but perpendicularly to the circumference of the cornea, into the external and inferior part of that membrane, so that the point penetrated into the middle of the new pupil. This simple puncture produced an incision of about two lines in length, into which I introduced pincers similar in shape to common polypus-pincers, of a very small size. The two extremities are like an open spoon; its length nearly that of A to B.

A B



"With this instrument I endeavoured to seize the fragment of the crystalline, but at the first attempt it disappeared altogether in the bottom of the eye. I succeeded better with the veil resembling a cobweb. The spoons of my pincers were filled with it, and I brought out a sort of opake jelly. I next introduced my double-button-scissors, and made an easy incision in the iris, so as to enlarge the pupil near the centre of the eye. The whole went on quickly, and without the patient's showing any signs of pain.

"After this operation, the eye healed in a very short time, no accident having retarded its cure: the sight appeared to be daily gaining ground. Since that time, the marquis has been to St. Gervais, at the foot of the Alps, for the benefit of the waters, where he took several sketches from nature, which are interesting, not only from the singular circumstances of his case, but from their real merit. Still he cannot see what is on the ground immediately below him, nor distinguish objects clearly without his convex glasses."

"Since the above was written, I have received several letters from the marquis de Beaumanoir. He had been to Nice, where he found great benefit from sea-bathing. He mentions with delight the wonderful progress of his cure. He can read, even by candle-light, the smallest printed and written charac-

ters. The drawings he sent me (still sketches from nature) are coloured, and have acquired great neatness. In a word, he sees as well as after the most successful simple operation of the cataract, since he assures me (in a letter from Lintz), that he cannot remember ever to have had a more perfect sight; that he pursues his occupations with the greatest ease, and is so independent as to walk in the streets alone at night without a guide."

"As I am of opinion that it is desirable to employ the buttoned scissors, in all cases of cataract, where there is a complication of the immobility of the iris, and its adherence to the opake capsula of the crystalline, I shall terminate this memoir with an account of the following operation.

"Dr. Carron, of Annecy, sent me, in the month of June, 1816, a young woman of about 26 years of age, whose right eye was affected with an opacity of the lens, and a complicated atrophy of the globe; there was also a cataract on the left eye; but with that she could distinguish light from darkness. The pupil was very small, incapable of performing the least movement, and evidently adherent in its circumference to the opake capsule of the crystalline, so that the iris and the capsula formed one continued membrane. She was operated upon in the following manner.

"I made an incision in the cornea, rather smaller than if it had been for extraction. Then with the pointed blade of my pupil scissors, I penetrated the iris at its inferior part, at the distance of a line from the circumference. I brought the blade in a vertical direction, as far as behind the crystalline: and when it arrived near the superior part, I shut my scissors, and thus cut the crystalline, its capsule, and the iris itself, in the direction of its axis or vertical diameter.

The pupil immediately became larger. The two segments of the capsule were separated, and showed a broken crystalline of a bluish grey (that of the capsule was of a yellow-white). It became very easy to extract the crystalline, piece by piece, with a small scoop; and I then took out with the pincers the largest segment of the opake capsule where it adhered slightly to the iris. The pupil, rendered larger by the double section of the

iris, remained, after the operation, of a very good size, and in the form of a weaver's shuttle. In consequence of which, I abandoned the idea of extracting the other fragment of the capsule, as the taking it away would have made the pupil too large. The following figure represents the eye immediately after the operation and since its cure.

## *An Account of the Progress of Knowledge respecting Materia Medica, from June* 1818, *to January* 1819.

"Non enim quidlibet ægris inculcasse; sed cogitasse quid maxime conveniret, et id usu explorasse, quod ante conjectura aliqua dicissent. CELSUS, lib. i.

[From the London Medical and Physical Journal, for February, 1819.]

PREVIOUSLY to a detail of the subjects we have to treat of in a particular manner, it may be proper to notice in general terms the various systematic works that have recently appeared on Materia Medica; of which the most important is the *Paris Pharmacopœia.** Of this we must speak in terms of warm approbation. The general arrangement of the matter is perspicuous and judicious; the language concise and accurate; and the whole highly creditable to M. HALLE, who superintended the composition.

One of the principles which influenced the labours of the authors is particularly deserving of praise; which they express by observing—"Perspicere præstantius certè est, quam despicere:" This relates to those formulæ which have been long established, and kept prepared by apothecaries, with the properties of which the public suppose themselves to be acquainted, and, consequently, are in the habit of employing without having recourse to professional advice.

* *Codex Medicamentarius, sive Pharmacopœia Gallica;* editus a Facultate Medica Parisiensi, anno 1818. 4to. pp. 393; apud Hacquart.

Professor SALVA has published on account of the materia medica employed by him in his practice at the royal Medical School at Barcelona*; which we notice, because of the judicious manner in which he has arranged and described the matters of which it treats.

The history of each medicine is divided into six paragraphs: the first indicates the name given to the substance by Linnæus, and the work in which it has been treated of by that naturalist; the second describes its physical properties; the third, its chemical qualities; the fourth, its most evident and general medical properties; the fifth treats of its curative property, which is the necessary result of the action of the preceding one: this last paragraph has often been left blank, in consequence of the obscurity in which the consecutive effects of medicine are still enveloped. The same reason induced him to arrange them alphabetically, rather than by any systematical classification. The sixth paragraph indicates the mode of using the remedy. Neither in the number of the medicinal substances employed, nor in the composition of the formulæ which he described, can Prof. Salva be said to be subject to the censure for too great multiplicity and complexity, which had been passed on many productions of this kind: on the contrary, we find many remedies which we consider as highly useful for their variety, and essentially necessary for their properties, not employed by him; such as arsenic, belladonna, colocynth, digitalis, gentian, scammony, &c.

An amplified and corrected edition of the *system of Materia Medica* of SCHWILGUE, by the late M. NYSTEN, has also recently appeared. The merit of this work is so well known and generally acknowledged, that any observations on our part are unnecessary.

A new and improved edition of the excellent pharmaceutic work of Dr. CADET DE GASSICOURT, with notes by Dr. PARISET, has also been lately produced.

The physicians of the United States are very actively engaged in the investigation of the medicinal qualities of the plants

* *Tercer ano Medico-Clinico de la real Escuela de Medicina Practica de Barcelona*, 4to. 1818.

produced on that part of the globe; several of which are indigenous to it, and highly estimable in the practice of medicine. The most important works on this subject now in the course of publication are those of Dr. BARTON* and Dr. BIGELOW:† that of the latter is particularly valuable from the great erudition of the author, and his extensive research respecting the observations that may have been made respecting the medical qualities of those plants already generally known, and from the accuracy with which the chemical analysis of them has been conducted. The work of Dr. Barton merits the highest praise for the accuracy of the botanical history, and the manner in which the representations of the plants are executed. We need not notice these works more at length on the present occasion, having already inserted in our Journal some extracts from them, which we shall repeat from time to time, respecting such plants as are known, or appear to be worthy of being brought into use, in Europe.

A new edition of the dispensatory of Mr. THOMPSON has also lately appeared,‡ which embraces every thing of most importance relative to pharmacy, &c. up to the period of its publication.

We have also to notice a work on the same subject,§ by Mr. GRAY. This is chiefly adapted to the use of the chemists of the present period, who have become what apothecaries were formerly.

* *Vegetable Materia Medica of the United States, or Medical Botany, &c.*; by W. P. C. Barton, M. D. Professor of Botany in the University of Pennsylvania, &c. &c.

† *American Medical Botany;* being a Collection of the native Medicinal Plants of the United States, containing their botanical History, chemical Analysis, and properties and uses in Medicine, &c.; by Jacob Bigelow, M.D. Rumford Professor and Lecturer on Materia Medica and Botany in Harvard University.

‡ *The London Dispensatory;* containing the Elements of Pharmacy, the Botanical Description, Natural History, Chemical Analysis, and Medical Properties, of the Substances of the Materia Medica, &c.; by A. T. Thompson.

§ A *Supplement to the Pharmacopœias;* including not only the Drugs and Compounds which are used by professional or private Practitioners of Medicine, but also those which are sold by Chemists and Herbalists, and for other purposes; by L. F. Gray. 8vo.

As the mode of action of numerous articles of the materia medica is obscure, and of many of them altogether unknown, —and also from several of them producing various effects when employed under different circumstances,—we shall consider those of which we have to treat in alphabetical order, rather than according to any systematic arrangement founded on their supposed properties.

ANTIMONIUM TARTARIZATUM, has been introduced to the notice of physicians by Dr. BALFOUR, as a medicine possessed of properties not generally attributed to it. The author, in his treatise on the subject,* observes, that it has been ordinarily employed only in *nauseating* doses, with a view to produce general relaxation and perspiration without heating the system; but that its sedative powers, independent of these obvious effects, were not known to the physicians whom he consulted respecting the intentions with which they had employed this remedy. Dr. Balfour has adduced the most ample testimony of its powerful sedative effects, and, consequently, of its great utility in all cases where it is desirable to lessen the action of the animal economy: such testimony as, we hope, will render the use of that medicine for these purposes more generally known.

ARSENICUM. The superior efficacy of this to all other known remedies in many cases of intermittent fever, is beginning to be as well ascertained on the continent as it has been for many years in England. Amongst various reports in its favour, we may particularly notice that of Mr. GASC, which is deduced from observations made during his official attendance on the hospitals at Dantzick. "The number of patients with fever was so great in the hospital," says that physician," and the disease had been so rebellious to the ordinary modes of treatment that I determined to have recourse to the use of arsenic†. I first administered it to some patients affected with quartan fever, selecting those cases which were not complicated with

* *Observations, with Cases, illustrative of the sedative and febrifuge Powers of Emetic Tartar.* By W. Balfour, M. D. See *London Medical and Physical Journal*, vol. xl. p. 410.

† The preparation he employed was similar to the *Liquor Arsenicalis* of the London Pharmacopœia.

other diseases, and in which the intermission was well marked. My first trials of it were so satisfactory, and the successful results so numerous, that I did not hesitate to extend the use of it to almost all the cases of fever of that species in the hospital, without regard to particular complications of disease, provided they were not of a nature to contra-indicate it in a positive manner. Of seventy-four patients to whom it was given,—sixty-three had quartan, six tertian, and five quotidian or anomalous fever: forty left the hospital cured within a month: half of the remainder were free from fever at that period; and the others were still under treatment, which had been suspended for various reasons."

Colchicum *autumnale*. The efficacy of this medicine for the relief of gout and rheumatism, and the safety with which it may in general be administered under judicious management,* are now generally known in Europe; and it has been commonly employed in the United States for some time with the same intentions. The diuretic and cathartic property of this medicine led Dr. Clarke, of Philadelphia, to suppose that it would be well adapted for many cases of dropsy; and he has employed it in one case with success.—"A black woman, aged 32 years, had ascites and anasarca of the lower extremities. I gave her two hundred drops of the tinct. colchici in the morning, which produced a very copious discharge of urine and watery fæces. The use of the medicine was continued for nine days, in which time the dropsical swelling had completely disappeared, and nothing was then left for me but to prescribe a little tonic medicine. In the space of nineteen days, I had the satisfaction of seeing her restored to her usual state of health."†

Galvanism. We shall quote the remarks of Dr. Wilson Philip on the use of this agent as a remedy for disease.

"The experiments related in the preceding enquiry‡ seem to point out, more precisely than former observations have done, what we are to expect from the use of galvanism in the cure of

* For some useful observations on this subject, see *London Medical and Physical Journal*, vol. xl. p. 396.

† *American Medical Recorder*, vol. i. p. 377.

‡ *An Experimental Enquiry into the Laws of the Vital Functions*, &c.; by A. P. Wilson Philip, M. D. F. R. S. E. &c. Second edition. London, 1818.

disease; and I think it will appear from what I am about to say, that, to the want of discrimination in its employment, we must ascribe the little advantage which medicine has hitherto derived from the discovery of this influence.

"It is an inference I have already had occasion to observe, from my own experiments and observations, as well as those of others, particularly of M. le Gallois, that what is called the nervous system comprehends two distinct systems,—the sensorial, and the nervous system properly so called. Now it does not appear, from the foregoing enquiry, that galvanism can perform any of the functions of the sensorial system; yet, in the greater number of instances in which it has been used in medicine, it has been expected to restore the sensorial power: it has been expected to restore hearing, and sight, and voluntary power. It may now and then happen, in favourable cases, from the connection which subsists between the sensorial and nervous systems, that, by rousing the energy of the latter, we may excite the former. It would be easy to show, that we have little reason to expect that this will often happen. We have also reason to believe that galvanism has no other power over the muscular system than that of a stimulus; we are, therefore, to expect little more advantage from it, in diseases depending chiefly on faults of the sanguiferous system, than from other stimuli, &c. But I cannot help regarding it as almost ascertained, that in those diseases in which the derangement is in the nervous power alone, where the sensorial functions are entire, and the vessels healthy, and merely the power of secretion, which seems immediately to depend on the nervous system, is in fault, galvanism will often prove a valuable means of relief."

Habitual asthma, unaccompanied with evident inflammation, was the species of disease in which it was employed with most benefit. Many of the patients were working people of the city where Dr. Philip resides, who had been obliged to abandon their usual occupations in consequence of it; and some of them from its long continuance, without any hope of returning to regular work. Most of them had tried the usual means in vain. By the use of galvanism, they were relieved in different degrees, but all sufficiently to be restored to their employments. Several of them, whom Dr. Philip saw lately, said they had continu-

ed to work without any inconvenience, although they had not used galvanism for many months. Some, in whom the disease had been wholly removed, remained quite free from it; some have had a return of it, and have derived the same advantage from galvanism as at first. It was applied in the following manner:—

Two thin plates of metal, about two or three inches in diameter, dipped in water, were applied, one to the nape of the neck, the other to the pit of the stomach, or rather lower. The wires from the different ends of the trough were brought into contact with these plates, and as great a galvanic power maintained as the patient could bear without complaint. The operation was discontinued as soon as the patient said that his breathing was easy, which generally happened in from five minutes to a quarter of an hour. It was seldom used more than once a-day; but, in some of the most severe cases, it was applied morning and evening. It failed to give considerable relief only in about one-tenth of the cases to which it was applied.

In order to apply this powerful agent with sufficient precision, and with a confident expectation of beneficial results, not only a correct knowledge of the nature of the individual disease, but accurate anatomical and general physiological information is requisite; particularly as regards the nervous system. It is also necessary that the medical practitioner be well acquainted with the nature of that agent, its mode of influence, and the various ways of producing and regulating it according to accidental circumstances. There is no work from which this knowledge can be so fully obtained, and with so much facility, as from the treatise of Dr. Bostock on this subject.*

Helleborus, *albus* et *niger*. A Memoir, relating an account of some experiments made with these plants by M. Schabel of Weissenbourg, was read, in September last, to the Medical Society of Emulation of Paris. Although nothing of great importance is adduced, yet we consider every thing relative to this subject too interesting to be passed over without notice. We shall not detail the experiments of M. Schabel, but merely the conclusions he has deduced from them.

* *An account of the History and present state of Galvanism;* by John Bostock, M. D. F. R. S. &c. pp. 158. London, 1818.

The lethiferous properties of those plants very much resemble each other.

These properties appear to reside principally in the resinous parts, and are not neutralized by the tincture of nut-galls, as many physicians have asserted. The emetic properties attributed to the resinous, and the narcotic to the gummy parts of these roots, has not been confirmed by experience.

The influence of these poisons is not only injurious to animals, but also to vegetables.

The effects they produce on the higher classes of animals are determined by the same circumstances on which those of the poisonous bitters, arsenic, and prussic acid, depend.

Their action is most marked when they are introduced into the blood-vessels, or applied on the serous membranes, or on organs well furnished with blood-vessels. The influence is exerted through the medium of the circulation.

Their effects are—slow, difficult respiration; slowness, and sometimes, irregularity of the pulse; vomiting of mucous and bilious matter; increased secretion of saliva; vacillation; vertigo; convulsions, followed by tetanus; and diminution of heat. At length the animal becomes cold, respires after long intervals, exhibiting hardly any signs of life; which is lost by degrees.

In those animals who have not been killed immediately by this poison, the lungs are found heavy, gorged with blood, either generally or partially of a brownish colour, and covered with a dense membrane. The gall-bladder is filled with bile, a large quantity of which is found in the superior part of the intestinal canal, and the mucous membrane of this cavity often shows signs of inflammation. The liver is frequently distended with blood. A large quantity of black blood is found in the great venous trunks; and the right, and sometimes the left cavities of the heart. The irritability of the muscles of both organic and animal life is still considerable, and the nerves possess the power of conveying impressions. The other organs do not evince any thing remarkable.

Black hellebore was much employed, two or three centuries since, as an emmenagogue, but it appears to be much neglected at the present time. Dr. MACLEAN, of Edinburgh, is disposed

to think very favourably of its powers in that respect, and has published some observations tending to demonstrate them.*

HYDRARGYRUS. Dr. SALAMANCA, of the Royal Marine Hospital of Spain, has made public some observations on the use of the prussiate of mercury in the treatment of syphilis, and some diseases of the lymphatic system; apparently owing to the remarks of M. CHAUSSIER respecting the superiority of this preparation for those purposes. The cases related by Dr. Salamanca do not appear to us either to be sufficiently interesting to merit detail, or to prove what the author would indicate. The history of the cases is too concise to permit any satisfactory judgment to be formed respecting them; and we consider that the measures generally adopted by judicious practitioners would have been equally successful. This author, however, states that, besides syphilitic, many dartrous and psoric affections, which had withstood all the usual means, disappeared under the use of this remedy. The ordinary dose was a teaspoonful of a solution formed of eight grains of the prussiate of mercury in eight ounces of water.

MOXA. We notice this subject principally from a desire to excite the attention of our readers to a remedy that it is much to be wished were introduced into practice in this country. The cases of hydrocephalus, in which it was employed by Dr. REGNAULT, related in the last volume of this Journal, are such testimonials in its favour as cannot fail to make a deep impression on the mind of every reflective medical practitioner; and, we should think, would effect what we have indicated.

NUX VOMICA. The accounts published by MM. FOUQUIER and HUSSON of their experiments with this remedy, have led to an extensive trial of its properties by other physicians; the results of which show it to be an highly valuable medicine, but which requires much caution in its application. Some cases, where it has been used by Drs. LESCURE and FINOT with the most evident benefit, will be detailed in another part of the present number of this Journal. We have chosen those to which we refer, from a series of successful instances of the application of this remedy, from their particularly pointing out its more

* See *London Medical and Physical Journal*, vol. xl. p. 16.

immediate effects, and the ill consequences that may ensue from its use when not judiciously administered.

TODDALIA. Although the consumption of cinchona bark at the present period is very small in proportion to what it was half a century since, yet, as MM. Humboldt, Bonpland, and other travellers assert, that it appears probable that the forests of Peru and the Andes will, before a century is passed, be exhausted of that valuable remedy, every substance apparently resembling it in its properties merits attentive consideration. Many physicians think that the bark of the willow, oak, horse-chesnut, &c. in our country, is no mean substitute for that of the Loxa of Peru; but it is probable that it is to warmer climates we must look for the most efficacious remedies of this class. Dr. VIREY, in a Memoir in the Journal de Pharmacie, states, that M. Bosc has received from M. Hubert, a botanist of the Isle of Bourbon, some specimens of the bark of a shrub, which is generally employed in the East-Indies, the islands of Madagascar, France, Bourbon, &c. as a febrifuge in place of cinchona, with the most satisfactory results.

This bark is rolled somewhat like the cinchona, covered with an epidermis of a brown or greyish colour, interspersed with yellowish spots. The epidermis is about a line in thickness, granular in its tissue, and of a bright yellowish brown colour: its taste is slightly bitter and aromatic. The interior bark, which constitutes the *liber*, is thin; of a reddish-brown colour; of a singularly bitter and poignant taste, somewhat resembling pepper in warmth, with a mixture of sweetness: its fracture does not present a resinous appearance.

The shrub that furnishes it is very common in Asia and some of the African islands: it is described by Van Rheede, in his *Hortus Malabaricus* (tom. v. fig. 41,) under the name of *Kaka-Toddali*. It is a small thorny shrub, with tortuous branches, according to Commerson. The flowers are axillary, composed of a five-parted calyx, five petals, five stamens, three styles, and three stigmas. The fruit is a berry about the size of a nut, containing five oval-shaped seeds: it is rugous on its surface, and contains a volatile oil, in the same manner as orange-peel. The leaves are ternate, covered like those of milfoil, with small

translucid points, oval, lanceolated, a little dentated, and armed with prickles like the stalks and branches.

Linnæus placed this plant in the class *pentandria*, order *trigynia*, under the name of *paullinia Asiatica*. Schreiber made it the genus *crantzia;* which has been changed into that of *scopolia* by Smith and Wildenow, under the name of *scopoliata aculeata*; and arranged with the *adelia* by De Lamark. Jussieu preserved the name of *toddalia*, by which it is known on the coast of Malabar.

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*An Account of some Experiments made on the Body of a Criminal immediately after Execution, with Physiological and Practical Observations.* By Andrew Ure, M. D. M. G. S.

[From the Journal of Science and the Arts, No. XII.]

Convulsions accidentally observed in the limbs of dead frogs, originally suggested to Galvani, the study of certain phenomena, which from him have been styled Galvanic. He ascribed these movements to an electrical fluid or power, innate in the living frame, or capable of being evolved by it, which he denominated Animal Electricity. The *Torpedo*, *Gymnotus* and *Silurus Electricus*, fish endowed with a true electrical apparatus, ready to be called into action by an effort of their will, were previously known to the naturalist, and furnished plausible analogies to the philosopher of Bologna. Volta, to whom this science is indebted for the most brilliant discoveries on its principles, as well as for its marvellous apparatus, justly called by his name, advanced powerful arguments against the hypothesis of Galvani. He ascribed the muscular commotions, and other phenomena, to the excitation of common electricity, by arrangements previously unthought of by the scientific world, merely by the mutual contact of dissimilar bodies; metals, charcoal, and animal matter, applied either to each other, or conjoined with certain fluids. And at the present day, perhaps the only facts which seem difficult to reconcile with the beautiful theory of electro-motion, invented by the Pavian Professor, are some experiments of Aldini, the nephew of the original discoverer.

In these experiments, neither metals nor charcoal was employed. Very powerful muscular contractions seem to have been excited, in some of the experiments, by bringing a part of a warm-blooded, and of a cold-blooded animal, into contact with each other; as the nerve and muscle of a frog, with the bloody flesh of the neck of a newly decapitated ox. In other experiments, the nerves and muscles of the same animal, seem to have operated Galvanic excitation; and again, the nerve of one animal acted with the muscle of another. He deduces from his experiments, an inference in favour of his uncle's hypothesis, that a proper animal electricity is inherent in the body, which does not require the assistance of any external agent, for its deveolpement. Should we admit the reality of these results, we may perhaps venture to refer them to a principle analogous to Sir H. Davy's pile, or voltaic circuit, of two dissimilar liquids and charcoal. This part of the subject is however involved in deep obscurity.

Many experiments have been performed in this country and abroad, on the bodies of criminals, soon after their execution. Vassali, Julio, and Rossi, made an ample set, on several bodies decapitated at Turin. They paid particular attention to the effect of Galvanic electricity on the heart, and other involuntary muscles; a subject of much previous controversy. Volta asserted, that these muscles are not all sensible to this electric power. Fowler maintained, that they were affected; but with difficulty, and in a slight degree. This opinion was confirmed by Vassali; who further showed, that the muscles of the stomach, and intestines, might thus also be excited. Aldini, on the contrary, declared, that he could not affect the heart by his most powerful Galvanic arrangements.

Most of the above experiments were however made, either without a voltaic battery, or with piles, feeble in comparison with those now employed. Those indeed performed on the body of a criminal, at Newgate, in which the limbs were violently agitated; the eyes opened and shut; the mouth and jaws worked about, and the whole face thrown into frightful convulsions, were made by Aldini, with, I believe, a considerable series of voltaic plates.

A circumstance of the first moment, in my opinion, has been

too much overlooked in experiments of this kind,—that a muscular mass through which the galvanic energy is directly transmitted, exhibits very weak contractile movements, in comparison with those which can be excited by passing the influence along the principal nerve of the muscle. Inattention to this important distinction, I conceive to be the principal source of the slender effects hitherto produced in such experiments on the heart, and other muscles independent of the will. It ought also to be observed, that too little distinction has been made between the positive and negative poles of the battery; though there are good reasons for supposing, that their powers on muscular contraction are by no means the same.

According to Ritter, the electricity of the positive pole augments, while the negative diminishes the actions of life. Tumefaction of parts is produced by the former; depression by the latter. The pulse of the hand, he says, held a few minutes in contact with the positive pole, is strengthened; that of the one in contact with the negative is enfeebled; the former is accompanied with a sense of heat, the latter with a feeling of coldness. Objects appear to a positively electrified eye, larger, brighter, and red; while to one negatively electrified, they seem smaller, less distinct, and bluish,—colours indicating opposite extremities of the prismatic spectrum. The acid and alkaline tastes, when the tongue is acted on in succession by the two electricities, are well known, and have been ingeniously accounted for by Sir H. Davy, in his admirable Bakerian Lectures. The smell of oxymuriatic acid, and of ammonia, are said by Ritter, to be the opposite odours, excited by the two opposite poles; as a full body of sound and a sharp tone are the corresponding effects on the ears. These experiments require verification.

Consonant in some respects, though not in all, with these statements, are the doctrines taught by a London practitioner, experienced in the administration of medical electricity. He affirms, that the influence of the electrical fluid of our common machines, in the cure of disease, may be referred to three distinct heads; first, the form of *radii*, when projected from a point positively electrified; secondly, that of a star, or the negative fire, concentrated on a brass ball; thirdly, the Leyden

explosion. To each of these forms he assigns a specific action. The first acts as a sedative, allaying morbid activity; the second as a stimulant, and the last has a deobstruent operation in dispersing chronic tumours. An ample narrative of cases is given in confirmation of these general propositions. My own experience leads me to suppose, that the negative pole of a voltaic battery, gives more poignant sensations than the positive.

But unquestionably, the most precise and interesting researches on the relation between voltaic electricity and the phenomena of life, are those contained in Dr. Wilson Philip's Dissertations in the Philosophical Transactions, as well as in his Experimental Inquiry into the Laws of the Vital Functions, more recently published.

In his earlier researches, he endeavoured to prove, that the circulation of the blood, and the action of the involuntary muscles, were independent of the nervous influence. In a late paper, read in January 1816, he showed the immediate dependence of the secretory functions on the nervous influence.

The eighth pair of nerves distributed to the stomach, and subservient to digestion, were divided by incisions in the necks of several living rabbits. After the operation, the parsley which they ate remained without alteration in their stomachs; and the animals, after evincing much difficulty of breathing, seemed to die of suffocation. But when in other rabbits, similarly treated, the galvanic power was transmitted along the nerve, below its section, to a disc of silver placed closely in contact with the skin of the animal, opposite to its stomach, no difficulty of breathing occurred. The voltaic action being kept up for twenty-six hours, the rabbits were then killed, and the parsley was found in as perfectly digested a state, as that in healthy rabbits fed at the same time; and their stomachs evolved the smell peculiar to that of a rabbit during digestion. These experiments were several times repeated with similar results.

Hence it appears, that the galvanic energy is capable of supplying the place of the nervous influence, so that while under it, the stomach, otherwise inactive, digests food as usual.

I am not, however, willing to adopt the conclusion drawn by its ingenious author, that the "identity of galvanic electricity and nervous influence is established by these experiments." They clearly show a remarkable analogy between these two powers, since the one may serve as a substitute for the other. It might possibly be urged by the anatomist, that as the stomach is supplied by twigs of other nerves, which communicate under the place of Dr. Philip's section of the *par vagum*, the galvanic fluid may operate merely as a powerful stimulus, exciting those slender twigs to perform such an increase of action as may compensate for the want of the principal nerve. The above experiments were repeated on dogs, with like results; the battery never being so strong, as to occasion painful shocks.

The removal of dyspnœa, as stated above, led him to try galvanism as a remedy in asthma. By transmitting its influence from the nape of the neck to the pit of the stomach, he gave decided relief in every one of twenty-two cases, of which four were in private practice, and eighteen in the Worcester Infirmary. The power employed varied from ten to twenty-five pairs.

The general inferences deduced by him from his multiplied experiments, are, that voltaic electricity is capable of effecting the formation of the secreted fluids when applied to the blood in the same way in which the nervous influence is applied to it; and that it is capable of occasioning an evolution of caloric from arterial blood. When the lungs are deprived of the nervous influence by which their function is impeded, and even destroyed, when digestion is interrupted, by withdrawing this influence from the stomach, these two vital functions are renewed by exposing them to the influence of a galvanic trough. "Hence," says he, "galvanism seems capable of performing all the functions of the nervous influence in the animal economy; but obviously it cannot excite the functions of animal life, when acting on parts endowed with the living principle."

M. Gallois, an eminent French physiologist, had endeavoured to prove that the motion of the heart depends entirely upon the spinal marrow, and immediately ceases when the spinal

marrow is removed or destroyed. Dr. Philip appears to have refuted this notion by the following experiments. Rabbits were rendered insensible by a blow on the occiput; the spinal marrow and brain were then removed, and the respiration kept up by artificial means: the motion of the heart, and the circulation, were carried on as usual. When spirit of wine, or opium, was applied to the spinal marrow or brain, the rate of the circulation was accelerated.

These general physiological views will serve, I hope, as no inappropriate introduction to the detail of the galvanic phenomena, exhibited here on the 4th of November, in the body of the murderer Clydsdale; and they may probably guide us to some valuable practical inferences.

The subject of these experiments, was a middle sized, athletic, and extremely muscular man, about thirty years of age. He was suspended from the gallows nearly an hour, and made no convulsive struggle after he dropped; while a thief executed along with him, was violently agitated for a considerable time. He was brought to the anatomical theatre of our university in about ten minutes after he was cut down. His face had a perfectly natural aspect, being neither livid nor tumefied, and there was no dislocation of his neck.

Dr. Jeffray, the distinguished Professor of Anatomy, having on the preceding day requested me to perform the galvanic experiments, I sent to his theatre with this view, next morning, my *minor* voltaic battery, consisting of 270 pairs of four inch plates, with wires of communication, and pointed metallic rods with insulating handles, for the more commodious application of the electric power. About five minutes before the police officers arrived with the body, the battery was charged with a dilute nitro-sulphuric acid, which speedily brought it into a state of intense action. The dissections were skilfully executed by Mr. Marshall, under the superintendence of the Professor.

*Exp.* 1. A large incision was made into the nape of the neck, close below the *occiput*. The posterior half of the *atlas vertebra* was then removed by bone forceps, when the spinal marrow was brought into view. A considerable incision was at the same time made in the left hip, through the great

gluteal muscle, so as to bring the sciatic nerve into sight; and a small cut was made in the heel. From neither of these did any blood flow. The pointed rod connected with one end of the battery was now placed in contact with the spinal marrow, while the other rod was applied to the sciatic nerve. Every muscle of the body was immediately agitated with convulsive movements, resembling a violent shuddering from cold. The left side was most powerfully convulsed at each renewal of the electric contact. On moving the second rod from the hip to the heel, the knee being previously bent, the leg was thrown out with such violence, as nearly to overturn one of the assistants, who in vain attempted to prevent its extension.

*Exp.* 2. The left phrenic nerve was now laid bare at the outer edge of the *sterno-thyroideus* muscle, from three to four inches above the clavicle; the cutaneous incision having been made by the side of the sterno-cleido-mastoideus. Since this nerve is distributed to the diaphragm, and since it communicates with the heart through the eighth pair, it was expected, by transmitting the galvanic power along it, that the respiratory process would be renewed. Accordingly, a small incision having been made under the cartilage of the seventh rib, the point of the one insulating rod was brought into contact with the great head of the diaphragm, while the other point was applied to the phrenic nerve in the neck. This muscle, the main agent of respiration, was instantly contracted, but with less force than was expected. Satisfied, from ample experience on the living body, that more powerful effects can be produced in galvanic excitation, by leaving the extreme communicating rods in close contact with the parts to be operated on, while the electric chain or circuit is completed, by running the end of the wires along the top of the plates in the last trough of either pole, the other wire being steadily immersed in the last cell of the opposite pole, I had immediate recourse to this method. The success of it was truly wonderful. Full, nay, laborious breathing, instantly commenced. The chest heaved, and fell; the belly was protruded, and again collapsed, with the relaxing and retiring diaphragm. This process was continued,

without interruption, as long as I continued the electric discharges.

In the judgment of many scientific gentlemen who witnessed the scene, this respiratory experiment was perhaps the most striking ever made with a philosophical apparatus. Let it also be remembered, that for full half an hour before this period, the body had been well nigh drained of its blood, and the spinal marrow severely lacerated. No pulsation could be perceived meanwhile at the heart or wrist; but it may be supposed, that, but for the evacuation of the blood,—the essential stimulus of that organ,—this phenomenon might also have occurred.

*Exp* 3. The supra-orbital nerve was laid bare in the forehead, as it issues through the supra-ciliary *foramen*, in the eyebrow: the one conducting rod being applied to it, and the other to the heel, most extraordinary grimaces were exhibited every time that the electric discharges were made, by running the wire in my hand along the edges of the last trough, from the 220th to the 227th pair of plates; thus fifty shocks, each greater than the preceding one, were given in two seconds: every muscle in his countenance was simultaneously thrown into fearful action; rage, horror, despair, anguish, and ghastly smiles, united their hideous expression in the murderer's face, surpassing far the wildest representations of a Fuseli or a Kean. At this period several of the spectators were forced to leave the apartment from terror or sickness, and one gentleman fainted.

*Exp.* 4. The last galvanic experiment consisted in transmitting the electric power from the spinal marrow to the ulnar nerve, as it passes by the internal condyle at the elbow; the fingers now moved nimbly, like those of a violin performer; an assistant, who tried to close the fist, found the hand to open forcibly, in spite of his efforts. When the one rod was applied to a slight incision in the tip of the fore-finger, the fist being previously clenched, that finger extended instantly; and from the convulsive agitation of the arm, he seemed to point to the different spectators, some of whom thought he had come to life.

An hour having been spent in these galvanic operations, I

then prepared to execute an experiment with the view of determining, by a new and simple mode, the quantity of residual air in the lungs. This physiological problem has been attempted to be solved in a great variety of ways; and the wide discrepancy of the results obtained by eminent philosophers, satisfied me, that the methods of operating hitherto adopted, must have been more or less erroneous. The *trachea* being cut across below the *pomum Adami*, a short brass tube was introduced into it, and firmly secured in its place by hooping with packthread; into this tube a stop-cock was screwed, air-tight. A glass globe of 159.3 cubic inches in capacity, with an attached brass cap and stop-cock for weighing gases, being previously exhausted by an excellent air-pump, and nicely poised at a delicate balance, was now connected with the stop-cock in the *trachea*. A small opening was then carefully made on each side into the *thorax*. When the communication between the lungs and the globe was opened by turning the stop-cocks, the air was heard to rush forcibly into the latter with a whizzing sound; when this ceased, the stop-cocks were again shut, the globe unscrewed, and suspended at the balance.

Its increase of weight was found to be exactly 31.8 grains. To ascertain whether the lungs and attached brass tube were perfectly air-tight, the globe was again connected with the windpipe, as before, and on re-opening the communication, a momentary puff of air only was heard to enter the globe; after which no sound of moving air could be perceived: the additional increase of weight was only 1.6 grains, though the connection was left open for some time, and though the globe was not more than two thirds replenished with air, or the included air was only two-thirds of the atmospherical tension.

By subsequent examination, the bulk of these 33.4 grains of air was found to be 105.2 cubic inches, consisting of about 91 of azote, mixed with a little oxygen, and 14.2 of carbonic acid. It is possible, that a larger proportion of carbonic acid than 13½ *per cent.*, would have been found before the galvanic respiration; though from the accurate experiments of MM. Allen and Pepys, we see, that breathing becomes intolerable with atmospherical air, charged with 10 per cent. of that

noxious gas. By the preceding method, it is obvious that the whole of the residual air may be readily extracted from the lungs without doing the slightest violence to their texture, while the fallacies incident to some of the former plans of experimenting are avoided; yet my result coincides very well with Dr. Goodwyn's determination of 109 cubic inches, obtained in a very different way. Variations must be expected according to the size of the person's *thorax*.

In deliberating on the above galvanic phenomenon, we are almost willing to imagine, that if, without cutting into and wounding the spinal marrow and blood-vessels in the neck, the pulmonary organs had been set a-playing at first, (as I proposed) by electrifying the phrenic nerve (which may be done without any dangerous incision,) there is a probability that life might have been restored. This event, however little desirable with a murderer, and perhaps contrary to law, would yet have been pardonable in one instance, as it would have been highly honourable and useful to science. From the accurate experiments of Dr. Philip, it appears that the action of the diaphragm and lungs is indispensable towards restoring the suspended action of the heart and great vessels, subservient to the circulation of the blood.

It is known that cases of death-like lethargy, or suspended animation, from disease and accidents, have occurred, where life has returned, after longer interruption of its functions, than in the subject of the preceding experiments. It is probable, when apparent death supervenes from suffocation with noxious gases, &c. and when there is no organic læsion, that a judiciously directed galvanic experiment, will, if any thing will, restore the activity of the vital functions. The plans of administering voltaic electricity hitherto pursued in such cases, are, in my humble apprehension, very defective. No advantage, we perceive, is likely to accrue from passing electric discharges across the chest, directly through the heart and lungs. On the principles so well developed by Dr. Philip, and now illustrated on Clydsdale's body, we should transmit along the channel of the nerves, that substitute for nervous influence, or that power which may perchance awaken its dormant faculties. Then, indeed, fair hopes may be formed of deriving

extensive benefit from galvanism; and of raising this wonderful agent to its expected rank, among the ministers of health and life to man.

I would, however, beg leave to suggest another nervous channel, which I conceive to be a still readier and more powerful one, to the action of the heart and lungs than the phrenic nerve. If a longitudinal incision be made, as is frequently done for aneurism, through the integuments of the neck at the outer edge of the *sterno-mastoideus* muscle, about halfway between the clavicle and angle of the lower jaw; then, on turning over the edge of this muscle, we bring into view the throbbing carotid, on the outside of which, the *par vagum*, and great sympathetic nerve, lie together in one sheath. Here, therefore, they may both be directly touched and pressed by a blunt metallic conductor. These nerves communicate directly, or indirectly, with the phrenic; and the superficial nerve of the heart is sent off from the sympathetic.

Should, however, the phrenic nerve be taken, that of the left side is the preferable of the two. From the position of the heart, the left phrenic differs a little in its course from the right. It passes over the *pericardium*, covering the *apex* of the heart.

While the point of one metallic conductor is applied to the nervous cords above described, the other knob ought to be firmly pressed against the side of the person, immediately under the cartilage of the seventh rib. The skin should be moistened with a solution of common salt, or what is better, a hot saturated solution of sal-ammoniac; by which means, the electric energy will be more effectually conveyed through the cuticle, so as to complete the voltaic chain.

To lay bare the nerves above described, requires, as I have stated, no formidable incision, nor does it demand more anatomical skill, or surgical dexterity, than every practitioner of the healing art ought to possess. We should always bear in mind, that the subject of experiment is at least insensible to pain; and that life is at stake, perhaps irrecoverably gone. And assuredly, if we place the risk and difficulty of the operations, in competition with the blessings, and glory consequent on success, they will weigh as nothing, with the intelli-

gent and humane. It is possible, indeed, that two small brass knobs, covered with cloth moistened with solution of sal-ammoniac, pressed above and below, on the place of the nerve, and the diaphragmatic region, may suffice, without any surgical operation. It may first be tried.

Immersion of the body in cold water accelerates greatly the extinction of life arising from suffocation; and hence less hopes need be entertained, of recovering drowned persons after a considerable interval, than when the vital heat has been sufferred to continue with little abatement. None of the ordinary practices judiciously enjoined by the Humane Society, should ever on such occasion be neglected. For it is surely criminal to spare any pains which may contribute, in the slightest degree, to recal the fleeting breath of man to its cherished mansion.

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*Account of the Elephantiasis in Iceland, from the Journal of a residence in that Island during the years* 1814 *and* 1815, by EBENEZER HENDERSON.

A little to the west of this place, we came to *Horgland* Hospital, one of the four establishments existing on the Island for the reception of incurable lepers, where I had an opportunity of contemplating that loathsome disease, so particularly described in the Levitical code, and which gave occasion to the composition of one of the most sublime pieces of Hebrew poetry that is to be met with in the sacred volume.

Two females were at this time in the Hospital, the one about thirty, and the other upwards of fifty years of age. The latter of those objects exhibited the most miserable spectacle I ever beheld. Her face and hands were swelled to a frightful degree, and full of livid red sores or blotches, between which appeared scars or rents, resembling cuts in a high state of inflammation. The other seemed to be affected with a less malignant species of the same malady: for though her face was also swelled, no pustules appeared; but the skin was covered with whitish glossy scales, and in some places intersected by reddish streaks, which are most probably a disposition to wrin-

kles. They were both sitting at the door of the Lazar-house, and the deepest melancholy seemed depicted in their looks.

It is now generally agreed among physicians that the Icelandic leprosy is the legitimate *Elephantiasis*, or *Lepra Arabum*, one of the most Herculean distempers ever employed as scourges to the human race. In its primary stages, its symptoms are inconsiderable, and very ambiguous. A small reddish spot, scarcely larger than the point of a needle, breaks out at first about the forehead, nose, corner of the eyes, and the lips; and, in proportion as it increases, other pustules make their appearance on the breast, arms, arm-pits, &c. which generally dry up in one place and break out in another without pain, till the disease has considerably advanced, when they cover almost the whole body, give the skin a scabious appearance, stiffen it, and terminate sometimes in shining scales, which fall off like dust, sometimes in malignant tumours and swellings. The patient in the mean time, labours under lassitude of body, anæsthesia, and lowness of spirits.

When the malady becomes inveterate, the breath, which before was disagreeable, now gets intolerably fœtid; a strong unctuous matter is perspired; the hair already changed in colour falls off; the voice grows hoarse and nasal; and the face becomes terribly deformed.

The look is wild and haggard; the pallid red colour of the body is only relieved by the most disgusting ulcers; which, becoming deeper, putrid, and virulent, not only affect the bones and joints, but, as they spread over the skin, deep ravines are formed, which give it an elephantine appearance, whence the name elephantiasis. The fingers get quite stiff and crooked, and the nails and other parts of the body fall off by degrees. During the night the patient is harassed with terrible dreams, and he is oppressed by day with a tedious melancholy, in which he is often tempted to make away with himself. He gradually surrenders one part of his body after another to the insatiate malady; and, at length, death, the long wished-for deliverer, comes suddenly and puts an end to his misery.

As the leprosy is infectious, almost every person shuns the company of the sufferer, which must greatly add to the misery of his situation; nor can he flatter himself, after the distemper

has advanced to a certain degree, with any hopes of relief from medical assistance. It is considered to be irregularly hereditary; yet symptoms do not become visible before the person has reached the years of maturity. In cases of infection too, it generally happens that three or four years elapse before any eruption breaks out on the skin. It then proceeds with slow, but steady progress, and it is possible for the person who is afflicted with it, to drag out a wretched existence to the protracted term of fifty or sixty years. Very emphatically have the inhabitants of the East given this disease, among other significatory designations, "The First born of Death." Nor is the Icelandic "Likthrâ" scarcely less striking. It properly signifies a rancid, putrefying corpse, than which there is nothing a person inveterately affected with the leprosy more perfectly resembles. The origin of this dreadful malady has been traced to Egypt, where it still exists, as also in Arabia, Morocco, China, Tartary, some parts of Russia and Sweden, the sea coasts of Norway, the West-Indian and Feroe islands, and Iceland. It was first transported by the Phœnicians into Greece: it followed the Romans on their return from Asiatic conquest, and from the twelfth to near the end of the sixteenth century, it was the terror and scourge of Europe, into which it was introduced a second time by the Crusades. What a mercy that we are now almost entirely freed from a disease, whose victims were at one time so numerous in Europe, that every country in it was filled with hospitals for their reception! The leprosy prevails most in the south and west quarters of Iceland, which is to be ascribed to the inhabitants of these parts being mostly employed in fishing, the rancidity of their food, their wet woollen clothes, an insalubrious air, and their not paying due attention to habits of cleanliness. The four hospitals, one in each quarter, were established in the year 1652, as appears from two royal receipts of that date, in virtue of which, four farms belonging to the crown were ap ropriated to that purpose; the supernumerary utensils and articles in the possession of the cloisters, were to be devoted to their establishments, and a privilege was granted, authorizing collections to be made, and certain fines and taxes to be appropriated for their maintenance. The managers were allowed a certain gratuity for their trouble, and were, besides,

exempted from paying the common taxes. These establishments have been subject to several changes since first instituted; and at present they are placed under the direction of the Stiftamptman and the Bishop, and enjoy only the fish tax, which is collected in the following manner: On the first fishing-day after Easter, an equal share of the fish taken by all the six-oared boats, is appropriated to the hospitals, except when the number of fish that is caught does not amount to five, in which case the hospital gets its share the following day. Considering the number that are afflicted with this evil, these establishments do not by any means appear adequate to their relief. It is seldom they receive more than eight lepers altogether; and, in the year 1785, not fewer than ninety-nine leprous persons were found in the diocess of *Skalholt*. What little funds they possessed have been nearly annihilated by the recent depreciation of Danish currency.

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## *Cases illustrative of the beneficial Influence of Nux Vomica in Paralysis.* Related by Dr. LESCURE.

[From the London Medical and Physical Journal, for February 1819.]

A YOUNG man, who had been afflicted with epilepsy from the age of twenty, which was first induced by the influence of terror, was twelve years afterwards attacked with *paraplegia* from a similar emotion: this new affection entirely superseded the former. Four years passed away without his experiencing any relief from the measures that were employed, when he came under the care of Dr. LESCURE. Four grains of the extract of nux vomica were administered daily, divided into two doses. After eight days the dose of the medicine had been raised to five grains, and to six grains in the course of the following week. The patient then began to complain of heat about the stomach; a sense of constriction in the abdomen; difficulty in passing the urine; and occasionally a sense of contraction in the muscles of the lower extremities. The use of the remedy was suspended for a short time, and then resumed in the former quantity. Three weeks afterwards, the retention of urine returned, and was more complete than on the former occasion; and it was accompanied with forcible sudden contractions in

the paralyzed limbs. These symptoms disappeared on omitting to use the extract for four days: at this time the patient was able to leave his bed, and walk about his chamber with the assistance of an arm. The medicine was then repeated in doses of eight grains: at the end of three weeks he experienced an attack of tetanus, which continued for four hours. This was followed by a still greater amelioration of the original disease, and at length by its perfect and permanent removal.

A female who had been subject to attacks of hysteria and pains about the loins and thighs, was seized with paraplegia after one of those paroxysms. The extract of nux vomica, conjoined with opium, was directed for her by Dr. Lescure. During the first week, the quantity administered daily of the former had been carried to six grains, that of the latter to half a grain: one grain and the sixth of a grain, respectively, were each week added to the daily doses of the medicine. At the end of a month the paralysed limbs became affected with slight contractions, to which succeeded a return of sensibility. On the forty-third day, pain about the stomach, and difficulty in swallowing and passing the urine came on; which accidents were followed by swelling of the paralytic extremities. These symptoms continued to increase for three days, when the use of the remedy was suspended. The same mode of treatment was resumed on the disappearance of these symptoms; but fifteen days afterwards they returned. On their subsidence the medicine was again administered; and eight days afterwards the patient experienced convulsive motions of the limbs, followed by tetanus and retention of urine. An amelioration of the original disease was regularly noticed after each of these attacks, and after the last the patient began to walk. The paralysis then gradually disappeared, and her health became perfectly re-established.

A female who had been affected with paralysis of the whole of the limbs, incontinence of urine, and amaurosis, subsequently to the cessation of the menses, and which continued to become more fully established, took the extract of nux vomica for two months. During this time two of the attacks above described, and which appear attributable to the medicine, had taken place. At the end of that period the disorder had entirely disappeared.

The following case of paralysis, treated by the same remedy, is related by Dr. FINOT, of Luxeuil:—

L. A. aged 52 years, of a robust habit of body, who had led an indolent life and indulged in excess in the use of spirituous liquors, was seized, in the month of February, 1818, with an attack of the apoplexy, which was followed by hemiplegia of the left side. All the usual measures were employed, without being productive of benefit. On the 1st of June he consulted Dr. Finot. He then had hardly any power of motion of either the arm or leg of the affected side; his speech was hardly intelligible, and the motion of one side of the tongue appeared to be performed with much difficulty. There was a distortion of the mouth, and complete eversion of the inferior eyelid of the left side.

On the 2d of June he took four grains of the powder of nux vomica; the quantity of which was increased without being productive of ill effect until the 8th, when slight spasms and convulsions of the affected limbs took place; which were succeeded by heat and pain of the parts, and greater facility of motion. The quantity of the remedy daily administered had been carried to twelve grains on the 14th of the same month, when the patient suffered darting pains and tremblings in the affected side. On the 18th, he could use the arm tolerably well, and bend the leg on the thigh, and the latter on the pelvis. On the 22d, he had recovered the power of almost the natural motion of the arm and leg, and could pronounce words with but little difficulty. The distortion of the mouth was hardly preceptible. On the 27th, after very painful darting sensations, which recurred during several successive days, the eyelid recovered its natural position. On the 30th, the patient walked with the assistance of a stick, experiencing only a little stiffness of the limbs. On the 4th of July he was perfectly well. The dose of the powder of nux vomica had been extended to twenty-four grains during the last few days.

*Journal Universel des Sciences Medicales*, tome xi.

## *Diseases contracted by Milking Cattle and Sheep.*

[From the Transactions of the Literary Society of Bombay, Vol. I.]

Extract of a letter dated Bushire, 26th March 1813, from W. Bruce, Esq. resident at Bushire, to W. Erskine, Esq. of Bombay, communicating the discovery of a disease in Persia, contracted by such as milk the cattle and sheep, which is a preventive of the small pox:

"When I was in Bombay, I mentioned to you that the cow-pox was well known in Persia by the Eliaats, or wandering tribes. Since my return here I have made very particular inquiries on the subject, amongst several tribes who visit this place in the winter, to sell the produce of their flocks, such as carpets, rugs, butter, cheese, &c. Their flocks during this time are spread over the low country to graze. Every Eliaat that I have spoken to on this head, of at least six or seven different tribes, has uniformly told me, that the people who are employed to milk the cattle, caught a disease, which, after once having had, they were perfectly safe from the small pox. That this disease was prevalent among the cows and showed itself particularly on the teats; but that it was more prevalent among and more frequently caught from the sheep.—Now this is a circumstance that has never, I believe, before been known; and of the truth of it I have not the smallest doubt; as the persons of whom I inquired, could have no interest in telling me a falsehood; and it is not likely that every one whom I spoke to should agree in deceiving, for I have asked at least some forty or fifty persons. To be more sure on the subject, I made more particular inquiries of a very respectable farmer who lives about 14 miles from this, by name Malilla, (whom Mr. Babbington knows very well,) and who is under some obligations to me; this man confirmed every thing that the Eliaats had told me, and further said, that the disease was very common all over the country, and that his own sheep often had it. There may be one reason for the Eliaats saying that they

caught the infection oftener from the sheep than the cows, which is, that most of the butter, ghee, cheese, &c. is made from sheep's milk, and that the black cattle yield very little, being more used for draught than any thing else."

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## *On Sarsaparilla.**

BY RICHAD BATTLEY, Chemist, &c.

[From the London Medical Repository, for March 1819.]

NOTWITHSTANDING the long experience which the Profession, both Medical and Surgical, have had of the qualities of Sarsaparilla, medical judgment is still divided respecting its efficacy in the cure of disease. It will, therefore, probably be considered fortunate if the ground of this difference of opinion can be satisfactorily explained.

In surgical practice, indeed, the credit of sarsaparilla has more uniformly been maintained, perhaps, because Surgeons are more frequently called upon to seek the means which increase the restorative powers of the body, when reduced by the various accidents, and by the class of diseases on which they are more particularly consulted.

It is well known, however, that even the ablest Surgeons, notwithstanding their uniform opinion as to the efficacy of this medicine, have yet doubted whether the ordinary mode of preparing it was best calculated to preserve its essential properties; hence some have been led to prescribe sarsaparilla in the inconvenient and bulky form of powder, hoping, amongst the useless, at least to retain the efficacious parts.

In the course of my attention to the preservation and preparation of medicines in their active forms, I have been induced to pay some attention to this root; and I can assert, as the result of direct experiment, that its medical properties reside,

* It is needless to say that we feel much obliged to Mr. Battley for the present communication; and that we shall always have a particular gratification in presenting to our readers the Papers which he may be good enough to forward to us. We are convinced that in the present day of scepticism and simplifying, too little attention is given to the analysis and constituent parts of the medicines which are used in practice.—LONDON EDIT.

exclusively, in the *cortical part;* and that such properties may effectually be disengaged by cold infusion in water; the root thus treated becoming a tasteless and inert substance. It follows, that when the cortical part has been materially injured, or when, in the preparation of the medicine, the ligneous part of the root has been chiefly regarded, the remedy so prepared must be, in a great measure, if not wholly, inefficacious. Various modes of improving on the simple infusion will readily suggest themselves to practitioners; and I find that an elegant preparation is produced by infusing the *perfect root* in cold lime-water; a menstruum particularly calculated to improve its medical properties when administered to dyspeptic patients.

The component parts of sarsaparilla, as far as I have been able to ascertain them, I shall reserve for a future communication.

## SELECTED REVIEWS.

*On the Mimoses; or, a Descriptive, Diagnostic, and Practical Essay on the Affections usually denominated Dyspeptic, Hypochondriac, Bilious, Nervous, Chlorotic, Hysteric, Spasmodic, &c.* By MARSHALL HALL, M. D. Author of "A Treatise on Diagnosis;" formerly Senior President of the Royal Medical Society, and Physician's Assistant in the Royal Infirmary, Edinburgh.

[From the London Medical Repository, for February, 1819.]

ONE of the most important lessons which the student of medicine has to learn, is the art of distinguishing between diseases of function and diseases of structure; and this art is only to be fully mastered in the school of actual practice. There are, however, general and leading points in morbid affections, by attention to which the judgment may be much facilitated in the distinctions alluded to; and we think those authors deserve well of the profession and of the public, who devote their attention to the combination and concentration, as it were, of these momentous particulars.

Dr. Hall had already proved himself gifted with an accuracy of distinguishing powers, by his useful work on diagnosis; and in the small volume which is now to be noticed, we meet with additional indications of industry and discernment.

"There is a class of disorders, (says Dr. H.) each of which is singularly characterized by being complex, multiform, various, and changeable, and by imitating, from the appearance and predominance of particular symptoms in particular instances, other diseases very different in their nature.

"These affections have been variously and perhaps too exclusively attributed, by some authors, to a state of derangement in one or more of the chylopoietic viscera; and by others to an unequal and undue distribution of the blood, by which a state of arterial excitement or of venous congestion is induced in some particular organ, or in some particular part of the sanguiferous system.

We fully agree with our author, that the ascription of those complaints by one set of pathologists to vascular, and by another class of reasoners to ventricular derangements, is too "exclusive;" and it is not uncommon to find the whole frame, as it were, out of joint, without any traceable localities in the induced derangement: such topical affections, whether of the circulating or chylopoietic systems, even when they do occur, being merely incidental consequences of universal disturbance: but on this head we must not trust ourselves here to enlarge.

With respect to Dr. Hall's term of designation, we hardly know whether to approve or not of its selection. Any thing that wears the semblance of affectation is in some degree objectionable; and we have already too many names in medicine, for what, in strict propriety, are nameless things. Diseases are not substantive and abstract existences. To talk, then, of "*mimosis*" as an order, and to sub-divide this order into the several genera of "*mimosis acuta*," "*chronica*," "*decolor*," "*urgens*," and "*inquieta*," is to imply that the several conditions which the above terms are designed to represent are to be met in a palpable shape, and with an undeviating regularity. The denomination *mimosis*, it is hardly necessary to state to our readers, is derived from the Greek word μιμος, *imitator*, and is intended to denote the appearance without the reality of a specific affection. Thus, should an individual be the subject of cough, expectoration, and other symptoms which at times proceed from pulmonic disorganization, and yet should such disorganization not be actually present, the disease would, in the proposed nomenclature of our ingenious author, be named a mimosis.

Under the head of mimosis acuta, the reader of this volume will find some very valuable remarks on distinctions between organic affections of an acute kind, and those derangements which merely consist in temporarily deranged functions.

"The severer form of the mimosis acuta (says Dr. H.) is early and principally characterized and distinguished by the concurrence of the following symptoms; namely, weakness, tremor, fluttering, faintishness, tendency to perspiration, susceptibility to hurry and agitation, and loss of flesh.

"The countenance is rather pale and thin; the lips are pale,

and, with the chin, frequently tremulous, especially on speaking; the surface of the face is generally affected with an appearance of oily, clammy, and swarthy perspiration, especially near the nose; there is a loss of colour, and usually a degree of sallowness and darkness of the complexion in general, but principally about the eyes.

"The tongue is almost invariably loaded; sometimes only slightly, whilst its edges are clean and red; at other times it is more loaded, swollen, and œdematous, formed into deep sulci or plaits, and marked by pressure against the contiguous teeth, the inside of the cheeks being also impressed in the same manner; the papillæ of the tongue are numerous and enlarged; the gums red and swollen; the teeth and the mouth in general foul, and the breath loaded and fœtid: in a third instance the tongue may, however, be clean, but lobulated, whilst the internal mouth and breath are little affected. The first state of the tongue is observed when the affection has not continued long; the second, when its accession had been particularly slow and gradual; and the third, when a similar but chronic state of disorder has long subsisted, and has at length been succeeded by the mimosis acuta.

"There is a tendency to perspiration on slight exertion or any surprise, and sometimes in the night or early in the morning; the skin is in general cool, rather moist, and clammy. The hands are apt to be cold; and the nails occasionally assume a lilac hue.

"The patient is usually affected with great tremor, observed on holding out the hand, on carrying a cup of tea, for instance, to the mouth, on attempting to stand erect, or walk, or on being fatigued or hurried. The patient is liable to experience faintishness in the upright position, if sustained for a little time; and he feels unaccountably feeble and weary.

"There is an early and daily loss of flesh. This, as well as the restoration of flesh during recovery, may be ascertained by weighing, as exemplified in some of the cases of this affection to be given hereafter.

"The patient experiences headach and vertigo, and he is nervous, and easily hurried and agitated. There is sometimes heaviness for sleep; sometimes great wakefulness and restless-

ness. There is almost universally a peculiar sense of fluttering about the heart and pit of the stomach; and there is frequently an acute pain in some part of the course of the colon.

"The appetite is generally much impaired, and there is often loathing of food; but sometimes the appetite is even greater than natural, and there is almost constant craving. The digestion is various, being sometimes quick, and at other times attended with great sense of load, distention, flatus, eructation, hiccup, and even vomiting. The bowels are at first constipated; afterwards constipation and diarrhœa alternate, and sometimes the latter symptom becomes nearly permanent; the motions during the constipation are small, during the diarrhœa scanty, extremely fœtid, dark coloured, often accompanied by blood, and frequently attended by tenesmus.

"The urine is extremely loaded in the commencement of the mimosis acuta, but may become perfectly transparent during its continuance; it is often high coloured; and, like the other symptoms, the appearance of this secretion is very liable to change.

"Besides the symptoms just enumerated, there are others which prevail more or less in almost every case; but they are, on the whole, less constant and more diversified; and of these one sometimes predominates so much over the rest, as to engross the attention of the patient, and sometimes of the practitioner, too exclusively. The secondary affection is then considered as idiopathic, and the symptom is apt to be treated as the disease. It is therefore of the utmost importance to present the reader with the following distinct enumeration of these symptoms:—

"1. Headach, vertigo, stupor, &c.—2. Cough, viscid expectoration.—3. Paroxysms of oppressive dyspnœa.—4. Palpitation of the heart, frequency and irregularity of the pulse.—5. Frequent and violent hiccup, vomiting of food.—6. Some convulsive and spasmodic affections.—7. Pain in the epigastric, or one or both of the hypochondriac or chondiliac regions.—8. Constipation, diarrhœa, tenesmus.—9. Melæna.—10. Icterus.—11. Severe pains of some of the limbs."

We have presented the above account of the characters by which mere functional derangements are marked, with a view

at once of doing justice to the author, and because we think, as before hinted, one of the most momentous concerns for a practitioner to attend to, both for his credit and his satisfaction, is that of carefully scrutinizing whether a malady to which he is summoned, be, if we may so express it, real and radical, or merely apparent and functional. We would discard with our author the terms " nervous," " bilious," and the like, as terms which are either too vague to mean any thing, or else involve an hypothesis which is frequently without any stable foundation.

The following we select from several cases with which Dr. H. presents us, under the head of mimosis acuta.

" *July 8th*, 1818.—Mr. S. F. aged 22. He had worked during one year in the lace frame, principally during the night, when he became affected with the following complaint, about four months ago. He first experienced an unusual degree of weakness, which incapacitated him for his employment; he then complained of a propensity to sweating on any slight exertion or emotion, with pain of the head, loss of appetite, constipation, &c. At first, too, he lost his flesh rather rapidly, to the amount, as he supposes, of about 14 lb. The countenance became palish and sallow, and he was told he had a *liver complaint.* The general weakness increased, and a degree of trembling was observed when he lifted his cup of tea to his mouth, when he attempted to walk, or underwent any fatigue.—At present the prolabia are rather pale, the face near the nose is affected with an oily perspiration, the eye lids are dark, and the general complexion is of a palish, sallow appearance. The albuginea is perfectly white. The tongue is white, loaded, and clammy. He perspires more than usual on any exertion. He has no headach or vertigo now, and has had no cough at any time. There is a sense of fluttering about the heart and stomach, especially on lying down. He says that he is low spirited, and does not like to be long alone or still. His appetite is still impaired; he complains of a sense of load at the stomach, with eructation, but he has no hiccup. The bowels are open. The urine was at first much loaded, but it is less so now. He complains of shifting pains about the limbs.—These complaints have been nearly stationary lately, the progress they appeared

to be making at first having been arrested.—The patient became gradually better, after the date of this report, by taking opening medicines, bathing, and using gentle exercise, with a change of air."

When treating more especially of the diagnosis, Dr. H. remarks, that "the mimosa acuta, in its severer but simpler form, has been generally mistaken for *fever;* in its less severe form it is necessary to distinguish it from *insidious organic disease*, and in its complications, the mimosis acuta must be carefully discriminated from *an original and local disease of the part symptomatically affected.*" We have some doubts with regard to the propriety of the first point of distinction, since it would seem questionable whether the general disturbance alluded to under the definition, might not, unless arrested in its course, come soon to be actual and positive fever. Dr. H. if he admits this, will perhaps reply, that the same thing may be said in reference to the occurrence of organic disease, as such disease might come to establish itself from unchecked functional disorder: but in this last case a new series of actions would be set up; while fever, if fever does occur in the way now supposed, would prove merely an increase in degree, not a something new in essence.

*Insidious organic disease* is to be distinguished, says Dr. H., from the mimosis acuta "by its *definite* form, and by a regular, slow, progressive, and almost *unvaried* course, during which the patient becomes gradually affected with paleness, debility, and emaciation, with comparatively little tremor." These circumstances of distinction we wish to point out, particularly to the junior practitioner, as of the highest consequence to attend to. If the pulse, for instance, is quick in mere functional disease, it is not of that *unvaried* celerity that marks organic affection; neither does emaciation in the former pursue that regular and progressive course that it does in the latter. The mode of perspiration too, which we do not find particularly pointed out by Dr. Hall, is very essential to take into account: in organic disease the sweats are, for the most part, of a hectic character, but partial, and of partly regular occurrence, while in mere functional disturbance the sweats are more irregular in point of time, and more universally diffused over

the body. Let it however always be recollected, when one particular organ is the medium by which a mimositic affection is displayed, that such affection is very apt to terminate in actual organic disease. But this is by no means invariably the case. Who does not know, that what are very improperly called sick, or bilious headachs, last sometimes for years, and then disappear, without leaving behind them any traces of encephalic disorganization? and it often requires repeated recurrences of spasmodic asthma to engender organic derangement of the pulmonary or cardiac tissues*.

With respect to the treatment of the mimosis acuta, Dr. Hall's sheet anchor is constituted by the use of purgatives; and as the derangement usually occurs as a consequence of sedentary habits and confinement in impure air, the treatment comprises "a particular attention to diet, air, exercise, bathing, and spunging."

The following are Dr. Hall's direction as to the employment of cathartics.

"The medicines I have generally employed have been calomel, the pil. hydrarg. rhubarb, aloes, senna, the sulphat of magnesia, and pure magnesia. They must be varied according to the previous state of the bowels, and to their effect on the alvine evacuation. This previous condition of the bowels is a state of constipation, or diarrhœa, of tenesmus, or of melæna.

"In the case of constipation an active dose of calomel may be given; and if its effect is such as was desired, it may be repeated at first every fifth night, and afterwards once a week, or once in ten days, always ensuring its operation, if necessary, by a solution of the sulphat of magnesia in an infusion of senna, or by pills of aloes and rhubarb. This medicine should also be repeated on the intermediate days. The object I have ever had in view has been to avoid purging, but to induce a large, copious, and consistent evacuation daily; and when I have been enabled to effect this, I have considered it at once as a source and criterion of increased strength or health of the

* Some difference of sentiment obtains on this head, as our readers will perceive by turning to a very interesting paper on asthma in the foreign department of the present Number. Lond. Editor.

alimentary canal. Frequently, however, when the patient is very feeble and infirm, the medicine appears to accumulate without operation, and the effect on the bowels is apt, by a repetition of the dose, to be extreme: this event may in general be obviated, either by the administration of a proper enema at the time when the medicine was expected to move the bowels, or by inserting into the rectum a suppository of tuffy or inspissated molasses, or of soap and honey, or other similar substance."

We could have wished him to have added to his suggestions respecting the propriety of occasionally varying the purgative, some rules with regard to the *combination* of different cathartic drugs. Of the utility of uniting several articles in one prescription, we are disposed to think the simplicity of modern practice rather too neglectful: certain it is that a mixture of several is often much more effectual than the same mass of only one or two ingredients; and besides, it is well known that some purgatives display their agency more powerfully in one, and some on another part of the intestinal tube.

With respect to the treatment of the local affections which occur in the mimosis acuta, we do not find any directions on which it appears necessary particularly to enlarge. Melæna, without disorganization, Dr. H. tells us, he generally finds yield to purgatives with pil. hydrarg. Our own plan in these cases of intestinal hæmorrhage has been usually a combination of infusion of roses with sulphat of magnesia and syrup of white poppy; a combination which we have scarcely ever prescribed but with the happiest effect.

The mimosis chronica of Dr. Hall answers to the disease described by most authors under the title of hypochondriasis: "it is denoted by fits of despondency and gloom, of invincible disinclination for exertion, of pain about the head, sinking of the precordia, and heat or fulness of the stomach." The same marks of diagnosis are to be attended to, *mutatis mutandis*, as in the more acute and active state of the complaint: and here Dr. Hall particularly points out the absence of the loss of flesh as one of the principal circumstances of distinction between this and organic ailment. With regard to the treatment, "as the affection is of longer continuance, a more persevering use

of the pil. hydrarg. and of gentle purgatives of rhubarb and aloes; and a more constant and indeed habitual attention to diet, with gentle exercise, are necessary."

As the mimosis chronica is the hypochondriasis, so is the mimosis decolor the chlorosis of other authors. "This occurs principally in female youth; but frequently in married women, both young and old, and occasionally in the young and sedentary of the male sex."—"It may be characterized in general as uniting a morbid state of the complexion, and generally of the surface, with recurrent pain of the head and of the side, palpitation of the heart, fluttering and nervousness, and some tendency to loss of flesh and to œdema."

Under the head of diagnosis, between the mimosis decolor and other diseases, we meet with the following remarks, which are well worthy of attention:—

"The state of the complexion, the tinge of surface, and the seat of pain, in the mimosis decolor, has very frequently led to the suspicion of chronic disease of the liver. The diagnosis is made by an attention to the contrast of symptoms, by observing the state of the conjunctiva, urine, and fæces, by ascertaining the recurrent nature of the pain of the side, and by a careful examination of the region of the liver. By these means the list of chronic diseases of the liver would be considerably curtailed, for I can recal at this moment numerous instances of this error in diagnosis."

That discoloration of the skin which attends diseases of cachectic debility and disturbance of function, and which arises from a torpid inactive state of the circulation and consequent inaction of the sebaceous follicles of the skin, is too apt to be taken as an index of hepatic obstruction, and mercury in consequence given, without the smallest necessity, in point of fact, for the administration of a particle of that medicine. The liver is a large and convenient corner for imbecility and idleness to resort to upon all occasions. We are always ready to applaud such authors as have courage and discernment enough to bear up against the overwhelming influence of hepatism.

This mimosis decolor is liable to be complicated with transient and continued affections of the head, with sudden and

continued cough and dyspnœa, with palpitation of the heart, with both transient, and protracted pain in the side or abdomen, with melæna, and with leucorrhœa; in all of which, the practitioner must carefully distinguish by the rules before laid down between mere pain and actual inflammation; and he must, at the same time, recollect the probability of a transition from functional disturbance into actual or inflammatory disorder of the organ.

Purging is still recommended in this species of mimosis, and there cannot be a question of its great utility; but we are disposed to think that, with purgatives, steel and other tonics may be here employed with more advantage than our author seems to imagine; nay, we are certain, that a judicious use of this class of medicinals may be made to apply in the disorders now under consideration with especial benefit: even actual inflammations may be warded off by the induction of such a state of permanent excitement as shall overcome the debility out of which the vascular irritation would otherwise grow. For the leucorrhœa connected with the mimosis decolor, Dr. H. recommends a *continued* local application of sulphat of zinc, in the proportion of from one to two drachms and a half to a pint of pure water. The way in which this application is continued is by a scroll of linen, made of a form and bulk nearly sufficient to fill the vagina, this scroll being fully embued with the solution mentioned. We are surprised to find no notice taken of that very efficacious medicine the tinct. lyttæ in these complaints.

The mimosis urgens is the fourth division of Dr. Hall, and this is more like the hysteria of authors; "it is denoted by sighing, sobbing, tears, or laughter, with a sense and expression of suffocation, and with some urgent affection of the head, heart, respiration, stomach, or muscular system." Spasmodic affections are here especially frequent, and the disorder is marked, as the author well expresses it, "by hurry and urgency." Inflammations are in this case likely to grow out of the spasms, and it requires sometimes much nicety to distinguish which is the actual state of parts. At this moment we have a patient under treatment who had been very injudiciously taking steel for supposed spasms; a complete diaphoragmatis was engender-

ed, but it was found necessary to go very cautiously to work with anti-inflammatory measures, as their use, even in a regulated and necessary measure, actually brought on very distressing spasms. In this state of things alarm is, however, apt to be more than commensurated to danger; and sometimes, as Dr. Hall observes, the trachea becomes so violently seized as to deceive a cursory observer into the supposition of actual croup."—"The attack of the mimosis urgens is relieved by æther. sp. ammoniæ comp. (arom.) opium, &c.; by stimulating liniments; by fomentation with hot water; and, if necessary, by blood-letting. The prophylaxis consists in removing the original disorder, and especially in the due administration of purgative medicines."

Under the head of mimosis inquieta (the last of our author's divisions) is included, "a continual restlessness; wakefulness; delirium; continued, rapid, and hurried breathing; frequent dry cough; a sense of fluttering and hurry; some spasmodic affections; hiccough; and great frequency of pulse."—"This state may sometimes be merely the effect of derangement in the digestive organs; sometimes it implies some obscure disease, as its cause; (query, is it then proper to apply the term to the state?) sometimes it arises from the too copious action of a purgative; or from too copious blood-letting; and it is sometimes the precursor of dissolution." In the first case "a purgative is the remedy on which most reliance is to be placed."—"In the case of an obscure disease, it is plain that this must be removed before relief can be obtained."—"In the other cases, the tinctura opii, the sp. ammoniæ comp. wine; stimulating liniments; proper fluid nourishment, cautiously given with wine; bathing the face with cold water; the effervescing medicine; fanning, and a free air, are the principal remedies."

We deem the symptoms characterizing this state important to take notice of, both on account of prognosis and practice. It is usually the forerunner of death after protracted disease; and we think it at least questionable, whether, by a bolder and more copious administration of the diffusible stimuli, of wine, cordials, ammonia, &c. the vital principle might not oftener than it is be preserved from sudden extinction.

We now close the little volume, the substance of which we

have endeavoured to present to our readers, with sentiments of much respect for its author. Patience in investigation, and accuracy in distinction, are among the most useful attributes that can belong to a Physician; and these qualities Dr. Hall evidently possesses in no inconsiderable measure.

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*Minutes of Cases of Cancer, Part II. being further Reports of Cancerous cases successfully treated by the new Mode of Pressure: with some Observations on the Nature of the Disease, as well as on the Method of the Practice.* By SAMUEL YOUNG, Member of the Royal College of Surgeons; of the Medical and Chirurgical Society of London; and Surgeon to the Cancer Institution, &c. &c. 8vo. pp. 199. London, 1818.

[From the London Medical and Physical Journal, for January, 1819.]

BUT few medical works of modern production have been more generally read, or excited more attention from surgeons zealously devoted to the improvement of their art, than that of Mr. Young, in which he published the result of his enquiries into the nature of cancer. It is now thirteen years since the appearance of that treatise, and the author again comes before the public, to express his conviction of the correctness of his opinions, to enforce them by further arguments, and to display actual evidence of the efficacy of his mode of treating that formidable disease. The result of so many years' experience, from ample opportunities for observation, of a gentleman of acknowledged candour and considerable talents, has powerful claims on the attention of professors of surgery.

The opinions of Mr. Young have given rise to much discussion, and his mode of treatment has received a rather extensive trial under the direction of other surgeons; the results of which have neither terminated in an acknowledgment of the truth of his theory, nor of the efficacy of his practice. The principal objections to the former are—that cancer is a constitutional disease, or, considering it merely

local, that it is accompanied with *specific* diseased action, which pressure cannot remove; and to the latter—its failure in the cases to which it has been applied. The arguments of Mr. Young, in opposition to the above-mentioned notions respecting this malady, are powerful and well conceived; but as they, we presume, are well known to our readers, and have already been fully discussed, it only remains for us at present to consider "*the method of the practice by pressure.*"

Reflection, alone, would not lead us to form deductions at all satisfactory, even to our own minds, respecting the power of compression for the cure of cancer. Acknowledging the correctness of the opinions of Mr. Young on the nature of the disease, the success of the application of the remedy must appear doubtful in the extreme. Experience, alone, must here be our guide. That it has, under the superintendence of the author, cured many cases of disease, considered as cancer, by surgeons of the first character for abilities and of the most extensive observation, is most satisfactorily evinced; but, when employed under the direction of other surgeons, it has not been equally efficacious.

The powerful evidence adduced by Mr. Young in favour of his mode of treatment, induced the medical officers of the Middlesex Hospital to employ it in the cancer-ward of that institution. The following is the Report of the Medical Committee, appointed to take into consideration the results:

"That eight cases of open cancer (as it is commonly called), and eight cases of the scirrhous kind, have been submitted to the treatment by compression; some of them for several months, and others for a shorter period.

"That, in some of the cases of open cancer, combined with considerable œdema, the pressure was useful in lessening the volume of the tumour; but that it had not, even in a single instance, any salutary influence upon the specific nature of the disease. It frequently gave so much pain that the patients could not, after repeated trials, endure it, under any modification whatever; and often it appeared to hasten the fatal event.

"That, in scirrhous tumours, the disease advanced, ren-

dering extirpation necessary in two instances: in six others, the disease passed into ulceration, assuming the usual malignant appearances, and terminating in death. Two cases still remain under the care of the respective medical officers.

"Your committee, however, although they cannot lay claim to the discovery of a specific, have still the consolation to believe, that they have, in many cases, succeeded in obtaining great alleviation of suffering; such alleviation as might, perhaps, induce some speculative minds, less disciplined by experience, to conclude that they had at length succeeded in discovering a cure for cancer."*

The above evidence is certainly powerful; but it is by no means decisive, when we consider how impossible it is to employ this mode of practice in the wards of an extensive hospital, with the accuracy and care so insisted on by Mr. Young, as absolutely necessary in order to obtain favourable results.

The ill effects which have been attributed to the use of the bandages are commented on by the author in the following terms.

"Nothing can be more ruinous to the object of this practice than the conversion, by careless or ignorant applications, of the proper pressure, into improper and partial stricture; or, on the other hand, where the diseased part, which ought to be the only one under the immediate influence of the pressure, is left untouched, with all the applications sliding over and rubbing its surface, and consequently producing irritation, while some other point of the body, generally the opposite side under the breast, across the stomach, or the side of the neck itself, is cut, as if by a ligature. These *circumstances* are only *the abuse* of the practice; they ought never to happen, nor do they *ever* occur when the applications are made upon a right principle.

"Some of the most important branches of surgery depend upon the roller; and yet in the first volume of Mr. John Bell's Surgery, there is an engraving of a gangrenous arm from bandaging. This representation is given, not to show the practical effects of bandages, but to exemplify, on the contrary, the consequences of *their abuse* under mismanagement, where, by

* *Surgical Observations*, by Mr. CHARLES BELL, Part i.

careless or ignorant applications, the very object of their intention is not only perverted but most dangerously reversed. So that in the common use of the roller, in the ordinary duties of the surgeon,—duties by far the most useful, as justly pointed out by that author,—it is seen how easily benefits of the first practical importance, and which are supposed always to be at our command, are superseded by irremediable mischief, in consequence of ignorance or inattention; and precisely may the principle of that treatment, which forms the present object of attention, be so perverted."

An accurate and neat application of the bandage is, indeed, rarely witnessed in English surgeons; a fault which has called forth the censure of our rivals on the continent; who demonstrate to us the various and beneficial effects of this powerful remedy, which we are obliged to acknowledge, but which, from some cause or other, we can rarely obtain from the same means. In zeal for the improvement of our art, and attention to the comforts of the victims of disease, we certainly are not inferior to the French surgeons; but a desire to effect every thing by general means and bold and decisive measures, makes us too often inattentive to what we consider as trifling circumstances that do not influence general results, but which are in reality the points on which, in many cases, they absolutely depend. The foundation of inability for an accurate application, and want of knowledge of the use of the bandage, is often laid at the earliest period of the education of the English surgeon: he is taught by his instructors to leave it to patients themselves or their nurses, and thus to neglect the use of the most powerful of all instruments in the hands of an expert surgeon, but which requires more dexterity than all the apparatus of SCULTETUS. It is, therefore, not without a blush that we aver, we do not expect to see the hope of general success from the treatment of cancer by compression realized at the present period, although it were actually a remedy for that disease. We fear there are but too many bars to its proving very beneficial to the public, by the obstacles to its use becoming extensive, in the habits and circumstances of medical practitioners in general; the application of the bandage requiring that time and trouble which some may be indisposed to devote to it through disincli-

nation, and others from a real want of leisure; and the instances, we believe, would not be rare where, with neither of these obstacles, the want of adroitness would prove prejudicial rather than useful.

The author has given very full instructions as to the manner of regulating the pressure in applying the bandages, which are too long to detail in this place; and to give detached observations, would not convey to our readers a sufficiently correct idea of it, for practical use; we must, therefore, refer them to the work itself. The description occupies several pages, but does not subject the author to the charge of prolixity: if he has gone into any minute details, it arose from the laudable motive of being desirous to be clearly understood, that the advantages which he supposes his method to possess may be transmitted to others.

The general results of this mode of treatment are expressed by the author in the following terms:—

"The practice by the treatment of pressure, in cancerous complaints, and all states of tumour and diseased enlargement, admitting the application, is seen then to be regulated and intimately connected with the circumstances and nature of the disease, generally and individually. In some cases, a complete removal of all the disease, and restoration of the natural structure, is effected; in others, a thickened state of parts or indolent tumour will remain, after the removal of the more palpable and active disease; while, in other instances, the disease can only be partially diminished and kept at bay by constant resistance from the pressure, reducing the latter cases to the state of a ruptured patient, who constantly wears a truss. And even in this state, as remarked on before, a most evident and important advantage is obtained; since you diminish and keep that at a stand-still, the increase and advance of which forms the extremity of the disease; in which the sufferings, the comforts, and life of the patient are involved.

"Such is the *rationale* of this practice, as confirmed by experience; and which will be generally admitted when the strangeness of novelty is worn off, when the subject is better considered, and the practice more adroitly understood and managed; and especially when a sense of that duty, which looks a little

beyond the present, opens to the mind an uprightness of conduct, and fair dealing shall take place of that policy which, by detraction, perversions, and mis-statement, may obscure and injure, but never can ultimately *destroy*, the ends of truth."

The necessary length of the detail of the cases adduced by Mr. Young, to evince the beneficial effects of his mode of practice, prevents the possibility of our transcribing one or more of them for the information of our readers; but this we the less regret, as we feel convinced that the greater number of them will diligently peruse the work itself. Although they may not then be induced to form expectations of compression being a *cure* for cancer, they must acknowledge that it has stopped the ravages of the disease, even in its most destructive form, and rendered existence pleasureable, which had previously been a mere susceptibility of agony.

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*Practical Observations on the Nature and Treatment of Marasmus, and of those Disorders allied to it which may be strictly denominated Bilious.* By JOSEPH AYRE, M. D. Member of the Royal Medical Society of Edinburgh; one of the Physicians to the General Infirmary at Hull; senior Physician to the Hull and Sculcoates Dispensary; and Physician in ordinary to the Lying-in Charity, at Hull.—8vo. pp. 256. London, 1818. Baldwin and Co.

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UNDER the term Marasmus, Dr. Ayre proposes to consider certain morbid conditions, which, according to the predominance of particular symptoms, have, by different authors, been designated under various appellations as distinct diseases. The diseased state originates in disordered function of the digestive system, and leads to that defective nutrition of the body which produces the obvious external character which is here adopted as distinctive of the morbid affection. The author considers the marasmus of children, and the disorder of adults commonly termed bilious, as diseases of the same origin and nature; modified, perhaps, by differences in the system dependent on differences of age and constitution;

and he, therefore, uses these terms indiscriminately, and comprehends under them every form and variety of the complaint. The disease is distinguishable into two stages,—an acute and a chronic one; their separate existence is often overlooked, though tolerably well defined by different symptoms. In the chronic form, there is a morbidly-craving appetite, without much thirst or fever; whilst, in the acute, there is a very marked loss, or an absolute extinction of appetite, with a considerable degree of both thirst and fever.

Dr. Ayre proceeds to describe, with great perspicuity, the symptoms which characterize the progress of marasmus in infancy, in childhood, and in the adult age. They are all indicative of deranged function in some of the chylopoietic organs; but we cannot here detail them. He remarks its frequent resemblance, in children, to the irritation of difficult dentition or of the worms in the intestinal canal, to tabes mesenterica, and to hydrocephalus internus. It is often confounded with dyspepsia, and the mild hysteria of women, and hypochondriasis of men. In the youth of one sex, it passes under the name of chlorosis; and, in the other, it is frequently denominated a chronic weakness. But the most important diseases which it resembles, and from which it is of most consequence to distinguish it, are the anasarca of debility, phthisis pulmonalis, and the organic and inflammatory affections of the liver.

It is only necessary to reflect on the importance of the perfect action of the digestive apparatus to the maintenance of a healthy condition of the entire system, to be convinced of the multiplied variety of secondary disturbances which may result from a derangement of the primary action in the series of animal functions. The necessary consequence of a first imperfect action is the imperfection of a second, which stands in the relation to it of effect. But, independently of such concatenation of disorder, which may be shown to be of physical necessity, there exists in the economy of animate beings another pervading medium, through which disturbance is propagated remotely through the system: strike upon the first link of the chain of sympathies, and vibration runs through its whole extension. Hence the varied course which derangement

of function may pursue; and hence the difference of character which disease may ultimately assume. From this source, too, no doubt, has emanated the endless enumeration of diseases which swell the pages of nosologists. We would not be thought to imply that all disease is of one origin, and that this origin is to be sought in chylopoietic disorder; the complex machinery of animal existence is amenable to the influence of many other extrinsic agencies than those which minister to its nutrition, and all of them may prove the cause of some irregularity of movement. Yet we are persuaded, that all of those inlets to disorder, conjoined, form but a trivial proportion to that great avenue, the *iter ad ventriculum;* and we also feel a conviction that medicine has often and long been engaged, and too often worsted, in the contest with affections as of an idiopathic and independent character, which were the secondary, or perhaps more remote, result of derangement introduced into the incipient functions of alimentation.

Dr. Ayre shows, that many of the symptoms assumed as characteristic of original diseases above alluded to, are but the product of disordered digestion; and that they are removable by the means which correct the primary affection. He does not combat the existence of such several diseases; but he makes it apparent that their idiopathic nature is frequently very liable to misconception. The distinctions which the author draws betwixt the fictitious diseases and their prototypes are clear and satisfactory. This diagnostic part of the work is full of interest.

Diseased function may be frequently, and for a long continuance, present, when no lesion of organic structure shall be afterwards discoverable, and the symptoms may be such as to induce a belief that organic disease exists; whence, as the author judiciously remarks, highly pernicious practice may be adopted. Minute and extensive examination has convinced Dr. Ayre that defective action is much more rarely to be ascribed to change of structure in an organ than it is common to suppose. His opinion on this subject, with regard to that important viscus—the liver, does not coincide with that of some of the profession, whose opportunities of

judging have been very extensive. Some valuable observations occur in the consideration of this part of the subject.

"A considerable number of the symptoms of the bilious affection are produced by the operation of that law of the animal economy which we term sympathy; for beside the general and local disturbance which is observed to arise directly from the disordered actions of the liver and the other chylopoietic viscera, there are several important affections produced through the sympathetic connexion subsisting between these organs and different parts of the system, whereby an irritation, present in the former, is communicated to parts of the body with which they have no local nor apparent relation. Of the effects resulting from the agency of this law, there may be said to be several kinds.

"The first we may notice is an increased action of the serous and mucous membranes, whereby a larger secretion of their proper fluids, or a morbid change in them, is produced."

Of the sympathetic establishment of diseased action in these structures, several instances are adduced; leading, in some cases, to partial or general anasarca; in others, to accumulation of serous fluid in particular cavities, and lymphatic depositions in other parts; and, in mucous membranes, to increased action, to purulent secretion, and even to ulcerative process. From the operation of this law, the author deduces the formation of topical, and sometimes formidable, disease, in remote, and frequently important, organs. Hence a frequent cause of difficulty in discriminating betwixt symptomatic and idiopathic disease. On this point the author enlarges to some extent; particularly in treating on the sympathetic affection of the mucous membrane lining the cavities of the respiratory organs. It is of great importance to discriminate betwixt irritation of this nature and the cough of phthisis.

Having treated at some length on the several affections considered as sympathetic, and shown in various instances, occurring in his own practice, their co-existence with biliary derangement, Dr. Ayre proceeds to illustrate the pathology of marasmus by facts connected with the functions of the alimentary canal. The different parts of the digestive appara-

tus have an intimate connexion with each other, by continuity of surface and by nervous intercourse; their severally subservient actions are excited by sympathy, and by the successive application of transmitted stimulant materials. Amongst organs so reciprocally dependent, and so consentaneous in their actions, disorder, in whichever originating, is easily communicated to others of the same system: thus, derangement of the stomach will produce irregularity in the action of the liver; and this latter, disorder in the functions of the duodenum, whence further disturbance is propagated. Thus it seems hardly possible that disorder should occur, however originating, in any part of this system, without the associate organs participating more or less in the morbid affection; and by these means the process dependent on their joint offices is imperfectly performed. It is difficult to determine which of the chylopoietic viscera is, in the disease under consideration, most commonly the first to suffer disorder; but we are enabled to detect the existence of derangement in several of the more important, by an obvious deviation from their accustomed actions. Thus, we observe the stomach craving or loathing food, rejecting the ingesta, or throwing out viscid phlegm or other vitiated secretions. Of deranged hepatic function we have tolerably accurate means of judging, by the appearances of the alvine excretions: in these we observe an excess, a suspension, a deficiency, or an unhealthy state, in the secretion of the liver. These are unequivocal indications of the seat of disorder; and these are commonly present, more or less, in the disease in question. In marasmus, Dr. Ayre thinks that disorder of the liver is rarely absent. In speaking of the derangements of function of this viscus, he is of opinion, that the dark matter which is frequently voided by stool owes its colour to the presence of blood, and that this is effused from the extremities of the minute branches of the vena portarum, in consequence of congestion in this system of vessels. The proof of this state of congestion he draws from various considerations, and he believes it to exist in both the acute and chronic stages of marasmus. It is caused, he says, by suspension of the secretory function of the liver, and is relieved in several ways,—by a restoration of the secretion of bile,

which, when in excess, constitutes cholera morbus,—or by an effusion, from the secreting extremities of the veins, of unchanged blood. To this, the author thinks, is to be attributed the black colour of the motions. This effusion he considers to take place sometimes in large quantity, and, when carried off by the bowels, it constitutes melæna; when it is thrown up by the convulsive action of the stomach, it becomes the disease hæmatemesis. The customary means of relief in these affections coincide with the view which is here given of their origin. Medicines which clear out the contents of the bowels, and promote the healthy function of the liver, relieve the congestive state of its venous system. This opinion of Dr. Ayre as to congestion in the hepatic vessels, is extended to its almost necessary occurrence in the early stage of disorder, wherein the natural action of these vessels is suspended; and he considers it to be almost invariably present as a precursory symptom to more obvious biliary derangement. This forms the main feature in his view of bilious disorders, and gives the bias to his practice; and, perhaps, it would not be easy to refute the author's doctrine. His view of the pathology of marasmus is recapitulated in the following passage:—

"1st. That this disorder consists in a deranged and imperfect action in the secretory function of the liver, and a consequent deficient and unhealthy secretion of bile, as is manifested by the alvine discharges not having that colour which is always imparted to them by it, when it is secreted in a healthy state and in the proper quantity.

"2d. That this derangement in the functions of the liver commonly arises from a disorder commencing in the stomach; for the function of digestion is performed by organs whose actions, by means of a nervous union established amongst them for this purpose, are rendered accordant and co-operative; the healthful action of the liver depending upon a stimulus imparted to it by the stomach in obedience to this law.

"3d. That in certain deranged states, therefore, of the stomach, the precise nature of which is unknown, there is either a morbid or an imperfect stimulus given to the liver, by which its secretory function is impeded, and a bilious fluid produced,

that is deficient in its quantity, and commonly of the morbid kind.

" 4th. That, as an interruption in the accustomed actions of a secreting organ occasions a congestion of its vessels, the diminished secretion of the bile gives rise to a congestive state of the vena portarum and its branches; and, in some cases, to a similar state in those organs whose venous system is associated with that of the liver.

" 5th. That, in consequence of those efforts which nature makes to free herself from disorder, this congestive state is sometimes spontaneously removed by a copious secretion of bile, constituting the bilious diarrhœa or the cholera morbus; and that, in other cases, it is temporarily relieved by an hæmorrhoidal flux, or by the discharge of blood from the loaded extremities of the vena portarum; occasioning, in this latter case, and when in small quantities, the black and tar-like, and often putrid and fetid, stools; and, when in excess, the idiopathic hæmatemesis or melæna.

" 6th. That, whilst this congestive state of the liver produces an assemblage of symptoms resembling in many points the acute inflammation of that organ, it differs essentially from that state in many important particulars. For, in the acute inflammation of the liver, it is the arterial action of the organ that is excited, and the congestion (if the expression be allowable) is arterial; the secretory function of the organ, from its being carried on by a distinct class of vessels, partaking only secondarily and partially in its effects; whilst, in the venous congestion of the liver, consequent upon an interruption in its secretory action, the arterial system of the liver is necessarily but little, if at all, affected; the congestive state of that organ being, in all probability, limited to the vena portarum and its branches.

" 7th, and lastly. That the indications for the removal of these morbid but dissimilar states will, therefore, necessarily be different. The inflammation in the liver will demand the same treatment which is applicable to inflammation in other parts of the body; for it differs in nothing from that state in them, either in its origin or nature: whereas, in the other disorder, from its having nothing in common with inflammation, it will not, as I have repeatedly found, be benefited by venæsection or

by blistering, and the severe and antiphlogistic regimen; but the principal object to be attained will consist in a renewal of the healthy secretory action of the liver, as it is from the interruption of this, that the congestive state, with its immediate train of painful symptoms, has arisen."

The remote causes which Dr. Ayre assigns to marasmus, are, cold—irregularities of diet—excess in the use of spirits—the impure air of crowded or close situations—certain eruptive fevers—sedentary employments, &c. &c. On each of these he specially dilates; and, in the part devoted to the consideration of irregularities of diet, are introduced some highly valuable observations on the dietetic treatment of infancy, which, in the hands of ignorance and depravity, is so commonly productive of disease and death. The very flagrant violation of the plainest dictates of nature, committed in the mismanagement of infants, almost from the moment of their birth, amongst the uninformed, must be familiar to the notice of every practitioner in the crowded haunts of man. These abuses the author takes an opportunity of exposing, and of justly reprobating; and we cannot but regret that his remarks on this subject should not have a wider range than the circle of professional readers will afford to them.

In the treatment of marasmus, Dr. Ayre lays down these general indications of cure:—1st, to correct the disordered action of the liver, and remove the congestive state of that organ; 2d, to cleanse the bowels of their morbid secretions, and the imperfectly-digested matters collected there; and, 3d, to lessen or avoid all those causes which tend to aggravate the complaint.

The two former of these indications call, of course, for the exhibition of medicines of the purgative class: but, of the agents of this order, he considers none so immediately adapted to fulfil the first intention as calomel, and that given in very minute doses. The doses, indeed, used by Dr. Ayre are so small as almost to appear inadequate to the design; but against the evidence of facts it is vain to reason, and the author says he finds his practice almost invariably successful. To the submuriate of mercury, given in such quantities, the author ascribes, not only a power of exciting the biliary se-

cretion when suspended, but of reducing it to a healthy proportion when in excess. Thus, he finds it equally serviceable in bilious diarrhœa or cholera morbus, as in those states of disorder where the bile is either not poured out or secreted in sufficient quantity. Keeping these properties in view, this medicine is not given in doses to excite purging, but is made to precede, in very minute and divided quantities, the exhibition of medicines for the avowed purpose of clearing out the bowels. Dr. Ayre cautiously avoids giving the calomel so as to affect the mouth, diminishing the quantity or frequency of the doses, and keeping an open state of the bowels by aperients. Of the last mentioned class of medicines, a preference is given to the neutral salts, as, in evacuating the contents of the intestines, they at the same time increase the secretions of their surface. But these purgatives are not exclusively used, as the author says it is often useful to act upon the different portions of the intestinal tube. Purging is not considered expedient in marasmus; but, when the morbid accumulation of irritating matter has been dislodged, a regular state of evacuation must be maintained. An emetic in the commencement of the attack is often serviceable; in the latter stages it is rarely useful. But we cannot follow the author through the whole of his curative views: suffice it to say, that they are characterized by sound judgment, raised on principles derived from rational deduction, and confirmed by the convictive test of experience.

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*General reflections on Fistulæ, and on the Formation of an accidental Membrane in their Course; followed by some Observations collected from the Clinical Lectures of* Professor DUPUYTREN *on the different Species of Maladies of this kind, and on the particular Mode of Treatment adapted to them.* By M. BRESCHET, Prosector to the Faculty of Medicine of Paris, and first Clinical Assistant at the Hotel Dieu.

[From the London Medical and Physical Journal for March 1819.]

WE passed over this Memoir in our History of the Progress of Medicine, from the consideration that it comprised but lit-

tle information of absolute novelty; but, on further reflection, we have judged that it may prove useful to many of our readers, as a developement of some opinions advanced by Mr. HUNTER, which do not appear to have been sufficiently reflected on by surgeons in general.

"The term *fistula*, in its more general acceptation, designates a *deep sinuous ulcer, with callous edges, communicating with the external surface or an internal cavity by means of a narrow opening; and from which a quantity of purulent matter is evacuated disproportionate to the extent of the ulcer.* As soon as matter of any kind, whether a recrementitious, excrementitious, or gazeous, fluid, from causes which it is unnecessary to consider in this place, happens to desert its natural course, the tissue in which this matter is diffused becomes the seat of inflammation. This inflammation is violent in degree in direct relation to the more or less irritating qualities of the fluid, and the excitability of the parts with which it has accidentally come into contact.

In consequence of the irritation produced by the presence or passage of this fluid or gas, which acts as a foreign matter, suppuration in the parts subject to its influence becomes established. The abscess opens sooner or later, either externally or into an internal cavity, according to varieties in the natural efforts or the artificial measures that have been employed. The purulent matter evacuated always presents some of the characters of the liquid that determined its formation, which escapes in combination with it, in a greater or less quantity. The continual passage of these fluids produces, in the surfaces of the artificial passage thus established, a permanent irritation that is sufficient to prevent the cicatrization of its parietes.

The presence of an animal fluid in any part not destined by nature for its reception, is then the cause, both of the establishment and of the perpetuation of fistulous canals.

We shall not be surprised at such a result, if we reflect that milk, a fluid apparently so mild and incapable of producing irritation, induces violent inflammation, often terminating in suppuration and even gangrene, when it is injected into the interstices of the cellular membrane. Thus, a substance which, when applied to the mucous membrane of the digestive organs ofe n

infant, only causes the degree of irritation necessary to affect its assimilation, becomes, in a part, the sensibility of which has not a due relation to its properties, an active morbific cause, in consequence of the extreme degree of irritation that it provokes.

There is no tissue nor organ of the animal economy, in the substance of which fistulæ may not be found. Thus, we have seen them traverse muscles, aponeuroses, and tendons, as well as the cellular and cutaneous structures. The viscera are not exempt from them; we frequently witness them in the parenchymatous organs, and occasionally in the brain.

It is, however, the cellular tissue, in which they are most frequently observed, either in consequence of the ready passage it affords for liquids, or from the general distribution of this structure throughout the body. This tissue is, indeed, universally diffused; it is interweaved throughout every part, and enters, as an element, into the composition of every organ. In some instances, it serves as a medium of connexion between several other tissues, which by their union compose a single organ; in others, it establishes limits to the respective viscera, muscles, &c. and supplies them with particular or common envelopments. It is very abundant about the excretory canals, around which it forms cellular sheaths; and presents varieties in its particular texture according to the functions it is designed to perform. For instance, were fat to accumulate in the vicinity of the mucous canals, it might lessen or totally obstruct their passage; and therefore it is of a filamentous texture in those situations, not having that degree of laxity which admits of the accumulation of animal oil in its interstices. In consequence of such a disposition, that tissue favours the formation of excretory canals, and does not offer obstacles to their dilatation.

As soon as an animal fluid, having deserted its natural course, becomes accumulated or passes into this tissue, all the phenomena ensue that accompany the irritation which we have described. But this irritation also causes a remarkable change in the nutritive functions of that structure; the surface of it which is in contact with the effused fluid becomes converted into a membrane very analogous to the common mucous membranes.

After the irritation has existed for a considerable period of time, and has attained a greater degree of intensity, it also induces a further change in the accidental membrane we have described, which possesses that character ordinarily termed *callosity*.

According to Dr. BAILLIE,* the celebrated HUNTER long since observed, in his Surgical Lectures, "that the internal surfaces of fistulæ have an appearance similar to that of a secretory membrane, and which may be compared with that of the urethra.† This important observation seems to have had little influence on the minds of practitioners for a considerable period; but the great progress that has been lately made in pathological knowledge, and the frequent opportunities of examining dead bodies, have verified and generalized the proposition of the English anatomist."

I shall adduce the following as one among the numerous facts which tend to substantiate the above statement:—

A young man, 20 years of age, had for some days perceived an indolent fluctuating tumour in the left groin, without discoloration of the skin, which disappeared after he had remained for some time in the horizontal posture. It was evidently a collection of matter transmitted to it from some other part. It burst spontaneously, giving exit to a considerable quantity of fetid purulent matter. The pains which the patient had suffered about the vertebræ, before the formation of the tumour in the groin, and which continued after it had opened, with the nature of the matter evacuated, clearly pointed out the primary disease to be caries of the vertebræ. The patient lived about two months after this time. The following were the appearances noticed on the examination of the body:—The lower dor-

* See his *Morbid Anatomy*.

† "We find something analogous to this in the Treatise of Mr. Hunter *on the Blood, Inflammation, and Gun-shot Wounds;* but there is a wide difference between a mere assertion and the demonstration and complete history of the organization of a part. However, we shall transcribe the passage referred to:——

"I believe that a deep wound, such as that from a gun-shot, on proceeding to suppuration and forming a fistulous ulcer, becomes in some degree analogous to an excretory canal, having the power of producing peristaltic motions from the bottom to the external opening."

sal and two upper lumbar vertebræ were in a carious state. A membranous canal, about an inch in diameter, extended from that part to the opening in the groin, the internal surface of which was a bright red colour. Blood could be squeezed from it by pressure, the same as from a mucous membrane in a state of irritation. The surface of this canal was covered with purulent matter, which was furnished both by the parts about the carious bones and its own internal membrane, that was irritated by the constant passage of the acrid purulent matter from the former source. It was easy to separate the artificial membrane which formed this surface, in the same manner as the internal membrane of the stomach may be rendered distinct, by dissection.

From the preceding observations, and other analogous considerations, it would appear that there can be no doubt respecting the nature of the adventitious membrane formed in fistulæ. If we now revert to the general theory of fistulous passages, we shall be obliged to admit, that the present state of our knowledge of pathological anatomy would lead us to consider these diseases as dependant on the formation of an accidental tissue, which, by its organization, properties, and functions, has the strictest analogy with the natural mucous membranes.

Let us, then, enter into a general consideration of the seat, developement, organization, properties, and functions, of this adventitious mucous structure.

1. It has been seen that fistulæ may be formed in all the different tissues of the animal economy, but that they most frequently are seated in the cellular membrane, which is that most extensively distributed throughout the body. This membrane is found thickly dispersed about the margin of the anus, in the perinæum, around the stenoid duct, &c.; which are the situations where fistulous ulcers most commonly appear.

2. The formation of the adventitious mucous membrane takes place, with more or less rapidity, in a direct ratio to the greater or less violence of the irritation of the tissue throughout which the extraneous fluid is diffused. The irritation is, however, not proportionate in extent to the apparent properties of the effused fluids; and it also varies in consequence of the different degrees of susceptibility of the parts affected.

The cellular membrane, in all cases, assumes in the first instance an ulcerated aspect, and furnishes a greater or less quantity of purulent matter. After this, it gradually evinces some peculiar character. It becomes red, in consequence of increased vascularity; its vital properties are exalted; the nutritive functions of the parts are changed; its density is augmented; and, finally, its appearance has become entirely changed. By means of these successive modifications, it assumes the state of a red villous membrane; differing not only from the cellular tissue, which is arranged in an areola; and the serous membranes, which are diaphanous and constantly disposed in the form of close pouches; but also from all the other species of structure that enter into the formation of the animal economy. In proportion as it is developed, it becomes more and more similar to the mucous membranes. The pus furnished by its internal surface is succeeded by a mucous secretion, which is more abundant as the new membrane produces less of purulent matter. A period at length arrives when it ceases to form the mucous secretion, which may be readily discovered by preventing the fluids that originally induced it from passing through the canal that it forms.

This canal, by means of its internal surface, is connected with these fluids, and the mucus secreted by the adventitious membrane; on its external surface, it forms a boundary to the surrounding parts, from which it is, however, separated by a layer of cellular membrane that varies in point of thickness. Superiorly, it commences from a natural excretory orifice, or some surface presenting the conditions proper to constitute a fistulous ulcer; and, lastly, constantly terminates inferiorly on some one of the cutaneous or mucous surfaces.

3. The organic elements of the adventitious membranes of fistulæ have the greatest analogy with those of the mucous membranes. This membrane is separated from the surrounding parts by a greater or less extent of cellular tissue, which may be termed *sub-mucous;* and it contains a portion of that structure in its composition, as may be demonstrated by maceration. Its redness discovers the presence of a large quantity of blood-vessels that terminate on its surface by exhalants, the existence of which is shown by the secretion of fluids. Since

nutrition is performed in this membrane, we cannot doubt that it contains absorbent vessels. But it is only by means of new researches that we shall be able to determine, in a precise manner, the respective proportions of the different vessels that enter into its composition.

Notwithstanding these traits of analogy, the adventitious membranes of fistulæ differ from the natural mucous membranes, in so remarkable a degree, as to prevent the admission of their perfect identity.

In the first place, the adventitious membrane wants that cuticle that is observed on the exposed surfaces of the mucous membranes of the lungs, digestive organs, &c. Besides which, it does not contain those glandular bodies termed *mucous follicles*, that are dispersed throughout the primitive mucous membranes, and secrete a viscous fluid destined to lubricate their surfaces.

These are not the only differences of organization noticed by the attentive observer between the accidental and natural mucous canals. There is a constant tendency to the obliteration of the former, as soon as the passage of the fluid through them is intercepted; whilst in the latter, under similar circumstances, such an occurrence is never, or very rarely, observed. For example, compare an old fistula, of whatever kind, provided it is still susceptible of being cured, with what is observed in cases of preternatural anus, and these different results will be very evident. We shall sooner or later succeed in effacing a fistulous canal, after having diverted from it the passage of the fluids by which it was produced, the effecting of which, we may observe, in passing, is the basis of the treatment of those diseases; but, in the preternatural anus, on the contrary, although the whole fæcal matter may pass through the accidental opening, the inferior part of the intestinal canal does not become obliterated, but continues to furnish a greater or less quantity of mucous matter.

This difference with respect to the facility of obliteration of canals formed by accident, and the almost constant impossibility of effecting it in those which are lined with natural mucous membranes, shows what little expectation should be formed of the permanence of canals formed in these tissues; and how

preferable are natural to artificial views in the treatment of those parts: that is to say, those which re-establish the primitive course of fluids, to those which effect new and artificial modes of transmitting them. It is in consequence of this, that passages formed through the prostate gland, by means of conical sounds, only remain as long as they are kept open by the presence of the instrument. It is from this, also, that practitioners have ceased to employ the methods of Woodhouse, Hunter, Monro, &c. for the treatment of fistula lacrymalis, and adopt that by which they endeavour to restore the natural passage of tears. However, nothing is more common than to witness the return of that disease, when it has been supposed to have been cured by a long-continued use of tubes, bougies, &c. but this arises from the disorder, in these cases, depending less on a contraction of the soft parts, or excretory ducts, than on that of the hard parts surrounding those passages. What proves this is, that the insertion of metallic canulæ, which offer more resistance to the bony parietes than the mucous membranes, is sufficient for a prompt and radical cure of a malady, too often rebellious to all the efforts of the most able surgeons, before they had recourse to canulæ that were permitted to remain in the parts, the advantage of which were long since pointed out by M. Dupuytren; and by means of these he has cured many hundreds of cases, for which all the ordinary methods had been employed in vain.

4. The vital properties and functions of the adventitious membrane formed in fistulous passages, much resemble those of the tissue to which we have compared it with respect to its organization. This membrane possesses various degrees of sensibility. Sometimes the introduction of a probe or sound into a fistula is productive of severe pain; whilst, at others, the presence of those instruments is more readily borne. We have observed that this membrane secretes a mucous matter, which at first is mingled with pus, but afterwards flows away perfectly pure; and finally ceases to be secreted, if we divert from it the fluid or other matters that had induced it: were it not for this, we could not hope to effect the obliteration of the fistulous canal.

After having given a rapid, though exact, history of the in-

ternal membrane of fistulæ, it remains for us to ascertain, more correctly than we have hitherto done, the nature of the *callosities*, the production of which we have attributed to the permanence of the local irritation, kept up either by means of the fluid that constantly passes over the membrane, or by various external causes,—such as certain topical applications, exercise on horseback, in cases of fistulæ about the anus and urinary passages, &c.

These *callosities* have a whitish appearance, and seem to be the result of congestion or colourless fluids in the membrane and subjacent cellular tissue. Formerly they were considered to be of a scirrhous, or even cancerous, nature; and these erroneous notions gave rise to injurious measures in the surgical treatment of this disease. Experience has shown, that rest, emollient applications, and appropriate dressing carefully applied, will, in the greater number of instances, effect their removal. According to the present received ideas respecting cancerous affections, and the treatment that should be opposed to them, it will be readily perceived that they differ in every respect from the callosities of fistulæ.

By a judicious use of the measures I shall presently point out, we may almost always spare the patient an operation, which, although generally exempt from danger, is productive nevertheless of severe pain, and frequently gives rise to very unpleasant consequences. I allude to the treatment of fistula by extirpation, a cruel operation no longer practised, or at least only adopted in places remote from the centers of acquisition in knowledge, and by persons governed by prejudices, or ignorant of the progress of the art of surgery.

A simple operation is now generally substituted in the place of extirpation, which is executed in various ways, subordinate to accidental circumstances and the particular inclinations of the surgeon. These consist, in all cases, in re-establishing or dilating the natural passages, in dividing or compressing the fistulous canal throughout its whole length, so as to give a free issue to the pus, and to oppose the passage of liquids, aëriform matters, or fluids, in the accidental canal; the bottom of which should be the first part that should become united. They have also another object; that of removing external extraneous sub-

stances, and favouring the separation and entire removal of those formed in the diseased tissues.

Fistulous passages differ considerably, according to the laxity, organization, and nature, of the cellular tissue in which they are developed; they vary also in the disposition and direction which they assume. Thus, they do not always extend in a right line; and often form numerous sinuses, terminating in more extensive cavities. The accumulation of fluids in the latter gives a complicated character to the disease, and renders the treatment of it tedious in consequence of the difficulty experienced in the discovery of these cavities, and the means of arriving at them. These complications depend on the same causes as the principal disease. The retained fluids, also, according to their nature, are productive of inflammation, and the numerous and various consequences that the practice of surgery daily offers to our observation.

We may, I believe, conclude from what has been stated—

1. The fistulæ are accidental canals, kept up by the continual passage of excrementitious substances, purulent matter, the liquids coming from secretory organs, or gazeous fluids, which produce irritation of their surfaces and prevent their adhesion.

2. That one of the extremities of fistulous passages constantly receives or produces the cause of the irritation that perpetuates their existence.

3. That it is to the knowledge of this cause that the practitioner should direct his attention, if we would employ a rational and efficacious mode of treatment.

4. That there is always the formation of a tissue of a particular nature in fistulous passages, more analogous to the mucous membranes than any other species of structure.

5. That, in some cases, this tissue is the only existing organic alteration; and this is what is commonly observed in simple fistulæ.

6. That, in many other cases, there exists at the same time a degeneration of the cellular structure and adjacent parts; a degeneration which we should be careful not to consider as the cause of the fistula, nor to confound with schirrous, cancerous, or carcinomatous affections, from which it essentially differs.

7. That the removal of the parts thus degenerated will not

remedy the cause of the fistula, it only destroys one of its effects that would generally disappear spontaneously after the cause of it had ceased to exist.

8. That the indications for the treatment of this malady are to prevent the formation of pus, or at least the flow of it through the fistulous passage; to re-establish the course of the fluids or secretions through their natural channels; and to prevent the escape of air by the opening that communicates with one of the extremities of the fistula.

9. Lastly, that, after the causes are removed, we may obliterate the fistulous passage, by dividing it throughout its whole extent; by the use of compression; or by exciting, by means of caustics or irritating injections, such an inflammation of its parietes as may induce their mutual adhesion."

## ORIGINAL PAPERS.

### *Observations on the efficacy of the* SCUTELLARIA LATERIFLORA, *or Scull-cap, as a preventive in Hydrophobia.* By JOHN VANCLEVE, M. D. of Princeton, New-Jersey.

TO THE EDITORS OF THE ECLECTIC REPERTORY.

*Gentlemen,*

THE melancholy cases of hydrophobia which have recently occurred in Philadelphia, I trust, will be deemed a sufficient apology, for the following communication on the efficacy of the *Scutellaria Lateriflora*, or scull-cap, as a preventive in that disease. The late Doctor Henry Van Derveer, senr. of Somerset county, New-Jersey, as is well known, has been long celebrated for the prevention of canine madness arising from the bite of rabid animals. I have not been informed that the Doctor ever wished to keep the remedy which he used a secret, but, be this as it may, it is certain, that long before his death, he made it known, expressed his entire confidence in its efficacy, and his great solicitude that its use might become general. The following extract of a letter from his son Doctor Henry Van Derveer, junr. shows the length of time and success with which his father had used it. "This plant, Scutellaria Lateriflora, has been used by my father as a preventive of hydrophobia ever since the year 1770 or thereabout, and I believe with uniform success, with the exception of the case of a young woman near Rahway, which was so far advanced, as in his opinion, to preclude all human aid. During his life, he had the happiness to administer it to near four hundred persons, and also to a great number of animals, the latter of which were frequently made the subject of experiment. His confidence in its efficacy was as perfectly established, as the nature of the subject would admit. A number of years ago he was applied to by a person of the name of Lewis, of New York state, to whom he

communicated a knowledge of the weed, and in all probability, this is the man of whom mention is made in the New York Medical Repository. In what way my father became acquainted with it, I am unable to say. His manner of using it, was to infuse half an ounce of the powder in a pint of water, to be taken through the course of twenty-four hours, and to be repeated for five or six days in succession, with low diet. I am extremely anxious that the public should be made acquainted with it, if it can be done in a manner that will command their attention and confidence. That this will be the case, there can be little doubt, if the new Pharmacopœia should be completed, and if it should be thought proper to make mention of it. It will thus become subject to the test of further experience, and that it may be found equally to succeed will surely be the wish of every person who has the interests of humanity at heart."

After my appointment by the Medical Society of New-Jersey, to attend the Convention which was to meet in Philadelphia for the purpose of forming an American Pharmacopœia; I addressed letters to several gentlemen, for information respecting the medical properties of certain plants, of which I had no practical knowledge. The letter of which the above is an extract, is dated 24th of May last, and was written in answer to one directed to Doctor Henry Van Derveer, on the subject of Scutellaria.

From this extract, it appears, that Dr. Van Derveer, senr. had used this herb as a preventive of hydrophobia for about forty-five years before his death. This event took place in Nov. 1815—that the Lewises of the state of New York, in all probability, obtained their information on this subject from him, notwithstanding what is said in the 14th Vol. of the New York Medical Repository to the contrary—that if there be any virtue in the plant, and if any credit be due, the person who first introduced it into practice, Dr. Van Derveer, is, beyond dispute, exclusively entitled to it. Dr. V. was a respectable physician, a man of unblemished character and of unquestionable veracity. Whatever he may have said respecting the medicinal properties of the Scutellaria, was doubtless from his own conviction of its correctness. That he had great experience in the efficacy of the Scutellaria, is proved, not only from the letter

above recited, but from the numerous instances which now could be adduced, if it were necessary, in which its timely administration had, to all human appearance, prevented the disease. A few days since, I had an opportunity of conversing with, and making enquiries of some respectable members of the bar and judges of the court in the county of Somerset in this state, gentlemen who had been personally acquainted with the late Doctor Van Derveer; they gave decided testimony in favour of his character and of the correctness of his former statements on the efficacy of the Scutellaria. Some of them had witnessed its successful administration in several instances, and the fatal consequences of the bite by the same animal when it was not administered.

I am far from believing that the disease would have taken plac in every instance in which the Scutellaria was used as a remedy, although it had not been administered; nor do I suppose that the Doctor believed it. But is it not rational to conclude, that the disease would have occurred in many instances, out of the near four hundred persons, to whom this medicine had been given, many of whom were known, and all it was believed, had been bitten by rabid animals? In a variety of cases it can be proved to entire satisfaction, that a dog afflicted with rabies, had bitten a number of domestic animals—that every one fell a sacrifice to the disease that did not take the medicine, and that every individual that took it survived. That Dr. V. had more experience in the efficacy of the Scutellaria, than other physicians, is doubtless a fact, and can readily be accounted for. He had used it near half a century: the knowledge of his success was extensive not only in this, but in the neighbouring states. It was not uncommon to have applications made to him by persons residing at the distance of twenty, thirty, and I have reason to believe in some instances, of more than an hundred miles.

I wish to be understood, that I have no practical knowledge of the alleged virtues of the Scutellaria, having never seen a case of hydrophobia in a human subject, and not more than four or five in animals, and these in the advanced stages of the disease. But the instances in which it appears to have been successful, are so numerous and so well attested, that a man must

be a sceptic indeed, if, after having been informed of them, he did not believe, at least so far, as to make it an object of serious enquiry. My object in this communication is to bring the subject again before the public, that medical men may be induced to subject the above mentioned remedy, to that patient and impartial investigation which a disease so awfully distressing, and hitherto so fatal, demands, and which the honour of the profession requires. I am the more desirous to do this, because the profession has been censured, and justly too, for the extreme indifference with which remedies proposed for diseases esteemed incurable, are usually received. It is true, the public is often imposed upon by the nostrums and panaceas of ignorant pretenders to medicine, which it must be acknowledged, to a certain extent, is an apology for the doubts and suspicions of a liberal profession. But men of high attainments, whose minds are enlarged by science, ought equally to avoid the extremes of weak credulity, or of obstinate doubt. Stubborn, unyielding scepticism, is no more to be tolerated in medicine, than in religion. If absurdity is stamped on the face of a remedy, let it be treated with contempt, but if it be doubtful, let cool, dispassionate, but persevering enquiry be resorted to, and experience will lead to truth.

It should be remembered, that it is the Scutellaria *Lateriflora* which was used by Dr. Van Derveer. It is described by Dr. Jacob Bigelow in his Florula Bostoniensis, and by Pursh in his Flora of North America, and is the first species in each work described under the genus Scutellaria.

I am, Gentlemen, with respect,
Your obedt. servt.
JOHN VANCLEVE.

Princeton, July 7th, 1819.

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FOR THE ECLECTIC REPERTORY.

## *Case of Intussusception.*

BY RICHARD HARLAN, M D.

I have been induced to offer the following case for publication; as it showed some peculiarities both in the symptoms, and in the parts affected by the disease.

On the first of May, 1819, I was requested to visit a child aged five months: I found her very restless, though there was no expression of acute pain;—the tongue was white and furred;—little or no fever; and, on pressing the abdomen, there was no indication of increase of pain.

Previously to my visit she had taken four grains of calomel, a quantity of the oleum ricini, and an injection of infusion of senna: but from the excessive irritability of the stomach, which was one of the earliest symptoms in the disease, the greater part of the medicines were thrown up.

I directed five grains of calomel, made into two pills, to be taken immediately; and one hour afterwards, to take a dessert spoon full of the oleum ricini every two hours; also an injection of turpentine—*made of half a drachm of the oil beat up with the yelk of an egg.*

At 10 o'clock P. M. I found the irritability of the stomach allayed, so as to enable the patient to retain the oil, of which she had taken, altogether, two ounces;—not the least discharge had been produced, per anum:—the enema came away immediately; the restlessness and anxiety were somewhat increased; she rolls her head frequently from side to side; refuses the breast; tosses her limbs in every direction: her eyes look brisk and animated, seldom cries out as if in acute pain; she still makes some efforts to vomit, though nothing comes off the stomach. I directed the oil and injection to be continued, and sinapisms to be applied to the feet.

May 2d—Her bowels have remained obstinately constipated. I was informed that irritability existed about the fundament, which was communicated to the bladder, producing strangury: her eyes yet retain their lustre: throughout the disease, from my first attendance, the patient has neither manifested acute pain, nor fever; at least in the usual manner.

On examining the fundament, we observed what I took to be an inversion of the rectum; which protruded nearly an inch beyond the verge of the anus every time the patient strained; to alleviate tenesmus, I directed an anodyne injection consisting of laudanum six drops, olive oil two ounces; the terebinthinate enema was omitted—the oleum ricini had remained up-

on the stomach, and was continued: and leeches were directed to be applied to the verge of the anus.

I called at 12 P. M. with a view to order a warm bath, but found the patient "in articulo mortis"—she died after a few slight convulsions.

*Dissection.*

I examined the body in the presence of Doctor Lawrence—on opening the abdomen we were immediately struck with the size and position of the colon, which appeared as if distended with fæces of a black colour, extending no further than the left hypochondriac region, where an intussusception was evident.

The better to investigate the nature of the case, we passed a ligature around the œsophagus and dissected out the whole alimentary canal:—We found the intussusception to commence, in that portion of ileum just before it enters the caput coli, but instead of entering, as usual, in the right iliac, it was found in the left hypochondriac region.

The parts involved in the disease were as follow: about one inch of the ileum, the whole of the cœcum, with a portion of the colon were received into the remaining portion of the colon: The intussuscepted portions of the cœcum and colon were of course inverted.—The cœcum had descended into the rectum; which gave to the latter the appearance of a bowel distended with hardened fæces, whereas there was not more than half an ounce of fœcal matter in the whole extent of the colon, and that was of a fluid consistence.

The cœcum was thickened from inflammation; and its inner surface, together with a portion of strictured colon, was in a state of gangrene. It was this hardened, tumefied, and inverted cœcum which had descended beyond the verge of the anus during the act of straining, and which I before mistook for a prolapsus of the rectum; but as only a small portion, comparatively, of the colon, was intussuscepted, its remaining portion was consequently thrown into a number of folds over the inverted portions of intestine. The annexed sketch may serve more clearly to demonstrate the size and appearance of the diseased parts.

The adhesions which, in a natural state, confine the cœcum

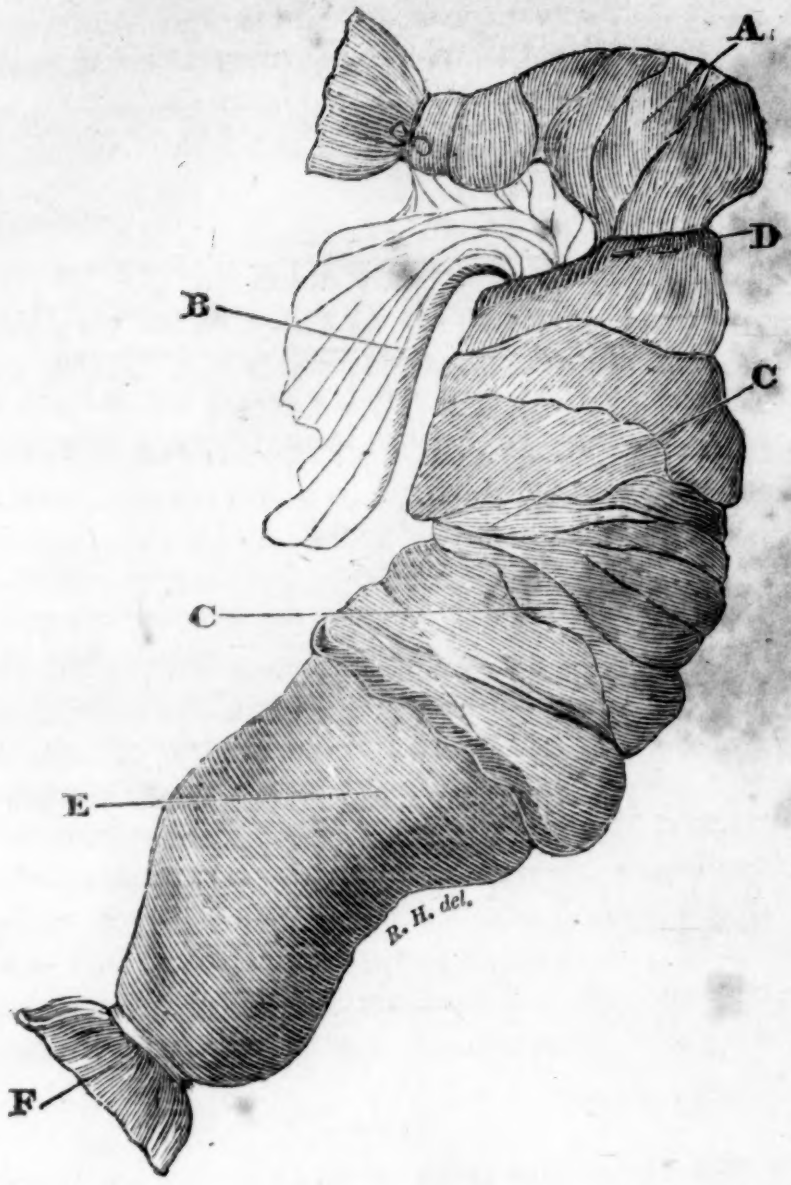
in the right iliac region, must in the present instance have been considerably stretched, or torn; but it may be remembered that in subjects of this age, they are slender and elastic.

Had the precise nature of this case been known, it would have been impossible to have overcome the obstruction by any mechanical means, as, after the parts were taken out of the body we were unable to dissolve their connections without laceration—after such separation, however, we were enabled to produce an artificial intussusception precisely similar to the original.

All the remaining abdominal viscera were in a natural state. In the ventricles of the brain we found much more water than usual; of which there was no characteristic symptom during life, unless the motion of the head from side to side be peculiar to it.

I may here remark, that in the course of my dissections I have found serous effusions into the ventricles of the brain when obstinate constipation of the bowels was the idiopathic disease, and symptoms of effusion, if any had occurred, were only secondary or symptomatic; and "vice versa."

*July* 14*th*, 1819.




A. A portion of the Ileum, just before it enters the Cœcum; distended with flatus, fluids, &c.

B. The Mesentery.

C. A portion of the Colon folded over the intussuscepted Cœcum and Colon.

D. The place of stricture.

E. The Rectum, which contained the Cœcum.

F. The Rectum cut off about an inch and a half within the Anus.

**The above figure is one third less than the natural size.**

## *Case of Varicose Swelling of the Labia Pudendi.*

To Thomas C. James, M. D. *Professor of Midwifery.*

Boston, May 5th, 1819.

Dear Sir,

In consequence of the acquaintance I formed with you, in my late visit at Philadelphia, I have taken the liberty to relate a case which has come under my care, since my return, which is not only novel in my practice, but which I do not recollect of having met with in any medical work.

### Case.

I was called to a young married lady in about the fourth month of gestation with her second child, who complained of pain in the labia pudendi. On examination, the left internal labium was found to be particularly enlarged; and it was presumed, that an inposthumation, to which females are liable during pregnancy, would be the result of the affection. The use of laxative medicine, the application of emollient cataplasms, and the observance of an antiphlogistic regimen, were directed. Not finding these remedies to have the desired effect, recourse was had to a more attentive examination, when the most satisfactory evidence was obtained that the enlargement and pain of the labia arose from a varicose state of the veins.

### *Symptoms.*

The symptoms were as follow; pain, increase of size and considerable sensibility; on the application of compression the labia were diminished, but on the removal of compression they immediately recovered their usual dimensions; the pain and tumefaction were augmented, in the latter part of the day, by an erect posture, and after much exertion.

A person conversant with varicose veins of the testicle, especially of the spermatic cord, would experience no difficulty in discovering a most striking resemblance between the two diseases, merely by tact. It was, indeed, by this test only, that a correct diagnosis could be formed. The state of the disease could not be discovered, as in some cases, by the external ap-

pearance, nor were the veins in the pelvic extremities and about the hypogastric region, varicose.

*Cause.*

The cause of the disease may be attributed partly to over-distention during her first labour, and partly, perhaps chiefly, to the officious interference of a young and inexperienced accoucheur.

*Remedies.*

It was recommended, that the parts should be supported by the application of a compress and the T bandage; but, owing to the inconvenience of applying it, it was omitted, and a bandage was adapted to the hypogastric region in such a manner, as to sustain the weight of the fœtus. In this way, the obstruction to the return of the blood through the iliac veins was removed, the turgid state of the varicose veins relieved, the pain alleviated, and the tenderness and tumefaction diminished. In addition to the above remedy, the frequent use of brandy diluted with water, applied cold, was recommended. It is perhaps, scarcely necessary to add, that my patient is so far recovered, as not, at present, to require medical attendance.

I am, with sentiments of respect and esteem,
Your obedient servant,

WILLIAM INGALLS.

# MEDICAL AND PHILOSOPHICAL INTELLIGENCE.

## AMERICAN PHARMACOPŒIA.

[From the Philadelphia Register.]

THE Convention of the middle states, for the formation of a National Pharmacopœia, met on the 1st instant, in the chamber of the College of Physicians of Philadelphia. During the session, the several articles of the Materia Medica, and their preparations, were individually considered, and such selection made as was deemed most proper. This Convention closed its session, on the 4th instant, by the appointment of the following delegates, to represent the middle district, in the general Convention, for the formation of a Pharmacopœia, and system of Medical Ethics, adapted to the United States, to be held in Washington, on the 1st of January, 1820.

Doctors, Samuel L. Mitchill, Alexander H. Stevens, Lyman Spalding, John Watts, jr. of New York; Thomas Parke, Thomas T. Hewson, of Philadelphia; Allen M'Lane, Wilmington, Delaware; Elisha De Butts, Samuel Baker, of Baltimore; Henry Hunt, of Washington, D. Columbia.

It is hoped that the practitioners of medicine, residing in the middle states, who are acquainted with the virtues of the American plants, will communicate such information, to some of the above named committee, in order that it may be incorporated in the great national work, which now promises to be speedily completed.

From a publication in the American Daily Advertiser of the 3d inst. it appears that the following medical delegates composed the Convention.

From the College of Physicians of Philadelphia—Doctors Thomas Parke, Samuel P. Griffitts, Thomas C. James, Thomas T. Hewson, Edwin A. Atlee, Joseph Parrish, Samuel Stewart.

From the Medical Society of the State of New York—Doc-

tors Samuel L. Mitchill, John R. B. Rodgers, John Watts, jr. Lyman Spalding, Alexander H. Stevens.

From the College of Physicians and Surgeons of the City of New York—Doctors William J. Macneven, John W. Francis.

From the College of Physicians and Surgeons of the western district of New York—Doctor Lyman Spalding.

From the New Jersey Medical Society—Doctors Charles Smith, John Van Cleve.

From the Medical and Chirurgical Faculty of Maryland—Doctors Samuel Baker, Elisha De Butts.

From the Medical Society of Delaware—Doctor Allen M'Lane.

From the Medical Society of the District of Columbia—Doctors Henry Hunt, Thomas Henderson.

Doctor Thomas Parke was elected president of the Convention, Samuel L. Mitchill, vice president, Lyman Spalding and Samuel Baker, secretaries.

Two outlines of a Pharmacopœia, and an outline of a Code of Medical Ethics, were proposed to and considered by the Convention.

Philadelphia, June 7, 1819.

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*Extract, from an act to vest a certain burying ground in the Board of Health, and to provide for registering the birth of Children in the City of Philadelphia and its vicinity.—Passed March* 27, 1819.

Sect. 2. And be it enacted by the Authority aforesaid—that it shall be the duty of all persons who may pursue or practise midwifery in the city of Philadelphia, in the incorporated part of the Northern Liberties, in the township of Penn, and the districts of Southwark and Moyamensing, between the first day of March and the first day of April, annually hereafter, to leave their names in writing, and the places of their residence, at the office of the board of health; and when so left, it shall be the duty of the clerk to receive and enter the same alphabetically in a book to be kept for that purpose, which shall be open at all

times, during office hours, to persons desirous to inspect the same.

And all persons pursuing or practising midwifery as aforesaid, shall keep a true and exact register of the births that take place under their care and superintendence; and shall, from time to time, as they may happen, enter the same, with the sex of the child so born, on a blank schedule, to be furnished to them by the clerk of the health office; which schedule shall be signed with the name of such person, and delivered on the last Saturday of each month to the clerk of the health office, or other person calling for the same. And every person pursuing or practising midwifery, neglecting or refusing to leave their names and places of residence at the health office as aforesaid, or to perform any other of the duties required by this act, shall forfeit and pay, for each offence, the sum of twenty-five dollars, to be recovered in the manner and for the uses prescribed in "an act for establishing a health office, and to secure the city and port of Philadelphia from the introduction of pestilential and contagious diseases, and for other purposes."

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*Extract, from an act for establishing a Health Office, and to secure the City and Port of Philadelphia from the introduction of pestilential and contagious diseases, and for other purposes. Passed January* 29, 1818.

Sect. 26. *And be it further enacted by the authority aforesaid*, That whenever any person shall die in the city, district, or township aforesaid, the physician or surgeon who shall have attended such person, as a physican or surgeon, during his or her last sickness, shall leave a note in writing, signed with his name, with some one of the family in the house where such person shall have died, specifying the name and apparent age of the deceased and the disease of which he or she shall have died. And every physician or surgeon refusing or neglecting to make and deliver such note, shall forfeit the sum of five dollars. And that no sexton of any church, or other person having charge of any cemetery, vaults, or burial grounds, in the city, district, or townships aforesaid, shall permit any dead body

to be interred therein, until he has received such note in writing so signed as aforesaid; or in case no physician or surgeon shall have attended such deceased person, or the physician or surgeon who did attend shall have neglected or refused to leave such note, then a like note signed by some of the family in which such person shall have died. The contents of which note in writing, shall be entered by such sexton on a blank schedule to be furnished by the clerk of the Health Office, or such other person as the Board of Health direct, and delivered, together with the said schedule, on the Saturday of every week to the Health Office for publication, in such form as may be designated by the Board of Health. And that every sexton or other person, having charge of any place of interment, neglecting or refusing to perform any of the duties required by this act, shall forfeit the sum of twenty-five dollars.

## Hydrophobia.

*Extract from a publication by Doctors Sargent and Elijah Griffith.*

[From Poulson's American Daily Advertiser.]

Impelled by humanity, a sense of duty, and a desire of exciting the public attention and fixing it on our common danger; the undersigned have been induced to offer the following facts and remarks for publication.

On the morning of the 4th inst. we were requested to visit Christopher Klowson, residing in Seventh street, near where it enters the Germantown turnpike. We saw him about 9 o'clock, A. M.; he was quite rational, and gave us a detailed account of his feelings, with all the previous circumstances.

He stated that he had been bitten in his right fore-arm by a large dog on the 20th of February last, at 2 o'clock, A. M. whilst discharging his duty as one of the city watchmen; that he then placed himself under the management of a person who professed to understand preventing the disease; from this person he took and swallowed four papers, at the price of one dollar

each. The wound healed in about one month; since then he had continued well until the morning of the 3d inst. at 2 o'clock; when he felt an uneasy sensation *in the part bitten*, attended with a weakness like palsy, as he expressed it, which soon passed through his shoulders into his body, and produced a fixed pain in the stomach; which was very severe at intervals, particularly at the approach of a paroxysm, and was accompanied by general flushings, which were visible in his face.

The first notice he had of any difficulty in swallowing, was in the morning on his way home from the watch; not feeling well, he called in for a glass of wine bitters at a tavern, but made many unsuccessful attempts before he swallowed it. At breakfast he had much difficulty in swallowing a little coffee and a small quantity of solid food. He described no symptoms but the weakness, flushing, pain in his stomach and difficulty in swallowing, particularly fluids; and it was not till the afternoon of the 3d, that he suspected hydrophobia; at which time he was bled and took a dose of castor oil, which had the usual effect; he said he had not slept half an hour the night before we visited him.

He made several attempts at swallowing water when we were present, and succeeded in throwing down one or two tea spoonsful with much convulsive difficulty, but swallowed with more ease a bit of bread that had been dipped into water. The sensation he expressed, as attending these attempts, resembled that of drowning or smothering. A distressing apprehension or timidity, as to every thing about him, appeared to be ever present, especially when a person came into his chamber, or on a current of air being admitted, or any appearance of water, &c.

We bled him; he was much alarmed at the operation, had a spasm, and observed that he never had been afraid of being bled before.

On examining his arm we found three distinct marks of the dog's teeth, but no visible inflammation. He held one hand hard pressed on the epigastrium almost constantly, and said every paroxysm began by a severe pain there, which made him press violently at the time; this had the appearance of something spasmodic.

He did not appear disposed to injure any person who came near him; on the contrary, he showed much affection for his wife and children. We visited him again in the evening, in company with Dr. Otto of this city, and Dr. Baker of Baltimore, and found all the distressing symptoms alarmingly increased. Every thing that the time and circumstances would admit of, was done for him, but to no purpose; after passing a night of unspeakable distress, being quite exhausted, he quietly sunk into the arms of death, at 7 o'clock this morning; exactly 53 hours after he felt the first symptoms of this awful and fatal disorder.

THOMAS SARGENT,
ELIJAH GRIFFITHS.

*Philadelphia, June 5th*, 1819.

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### Hydrophobia.

[From Poulson's American Daily Advertiser.]

In compliance with the request of several persons, the subscribers have been induced to lay before the public a brief statement of the case of Hydrophobia which occurred in Southwark a few days since. The unfortunate subject of the disease was Miss Eliza Frame, aged about 19 years, who resided in Second street, near Catharine. It appeared from the information given by the young woman herself, and confirmed by others, that she had been bitten about four weeks before, by a small grey dog, on the inside of the middle finger of the left hand. The wound was contracted while the patient had been in the act of driving the dog out of the room in which she was sitting. A friend proposed to send for medical assistance, but this she declined, from the apparently trifling nature of the accident, and an avowed belief that the dog was not mad. In a short time, however, the animal discovered a very vicious disposition by biting several other persons, and it was conceived necessary to destroy him.

This was accordingly done, without its being further determined whether he was really rabid, or not; he, as far as we were

able to ascertain, not having been seen, or examined by any one possessed of competent knowledge to decide. The melancholy event however of the wound received from him by Miss Frame, sufficiently, in our estimation at least, denotes the dreaded malady with which he must have been affected. We were told that the wound bled freely, was somewhat painful the first day, but soon healed.

In twenty-seven days after, Eliza began to complain of pain in the right side, and of being frequently chilly. On the 2d day of her indisposition her side became easy, but a more severe pain seized the left elbow, which was soon extended down to the hand, and upwards to the shoulder. Early in the morning of the 3d day she proceeded according to her usual custom to wash herself, and while attempting to apply the cool water to her face, she involuntarily started back, and suffered a pretty severe attack of a spasmodic affection.

A sense of suffocation attended this attack, and her sufferings were such as to oblige her to desist from what she was doing, nor was she at any other time during the day able to make any further application of the water to her face. In the course of the day she sustained repeated attacks of spasms, produced by other exciting causes, always referring her chief uneasiness to the breast, stomach and the upper part of the throat. In the night following she experienced a paroxysm of the spasms more alarming than any that had occurred before, impressing for the first time, both the patient and the lady with whom she resided, with an apprehension of her case being dangerous.

At six o'clock in the morning of the 4th day, the symptoms with which she had been before affected were now presented in an aggravated form. The pulse was tense, and frequent; the causes capable of exciting the spasms, and the attending sense of suffocation had been multiplied. A mere draught of air from a door was at this time sufficient to induce them, and every attempt to swallow liquids was not only impracticable, but certain to occasion great anguish. At half past nine o'clock, A. M. the pulse was 130 a minute, and her distress arising out of the frequent occurrence of the spasms, and the danger of suffocation, was very great. Her thirst was insatiable, and she was fre-

quently making efforts to discharge from the mouth and throat a frothy saliva, which was of so viscid a nature, that she was often under the necessity of detaching it with her finger.

The nervous system was excitable to so great a degree, that any sudden movement in the room, such as the opening or shutting the door, the undulation of the water used by the person engaged in cupping her, although she did not see it, the flame produced by burning the pieces of paper employed by the cupper, and many other causes which, under other circumstances, would be equally trifling, were remarked at different times to precipitate this unhappy girl into convulsions, exhibiting that kind of poignant suffering, which perhaps may be more easily conceived of, than expressed by language. Her intense thirst has been referred to; it may be useful, on some other occasion, to remark that a temporary alleviation of that sensation was obtained, by applying to her mouth and lips some lime juice.

In the intervals of her paroxysms the mind became a little composed, and she was several times capable of speaking collectedly. We were of the opinion that this occasional mental composure, was in part to be attributed to our having very carefully kept from her knowledge, the nature of her complaint. In one or two instances, when the bite she had received was adverted to within her hearing, she manifested but little present concern about it, and enquired whether there could be any danger of her becoming mad, in consequence of it. That the tendency of the wound she had received had occupied very little of either her attention or her fears, was rendered more fully evident by the fact of her having forgot, when her case was first under investigation, that she had been bitten by a dog. When she was asked if such had been the case, she replied in the negative. There was much local irritation about the neck and throat, pressure, even of a light kind, made with the fingers on the upper cervical vertebræ was repeatedly observed to produce spasms, and a sense of stifling, or difficulty of getting the breath. This symptom, it is conceived, is accounted for by what is stated in the last passage of this communication.

At 11 o'clock A. M. the pulse became weak and tremulous, and in a few minutes ceased at the wrist, her voice was next

observed to fail her, and she expired at half past 11. To the medical profession it may be interesting to state, that the treatment consisted of two bleedings, one of ten, and the other of thirty ounces, and a cupping along the course of the spine.

In the examination of the body after death, the spinal marrow was found inflamed.

HARVEY KLAPP, M. D.
JOSEPH KLAPP, M. D.
HENRY NEILL, M. D.

*Philadelphia, July* 1, 1819.

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*Hospital for the Small-Pox, for Inoculation, and for Vaccination, at Pancras.*

[From the London Medical and Physical Journal, for March, 1819.]

An account of the number of Deaths occasioned by the casual Small-Pox, extracted from the register for twenty years before the practice of Vaccination, and also for twenty years since; also the Number of Deaths as reported by the Parish Clerks of London, &c. copied from their general Bills of all Christenings and Burials for the same period:—

| *Before Vaccination.* | | | *Since Vaccination.* | | |
|---|---|---|---|---|---|
| A. D. | Hosp. Reg. | Par. Reg. | A. D. | Hosp. Reg. | Par. Reg. |
| 1779 to 1798 | 1867. | 36,189 | 1799 to 1818 | 814 | 22,480 |

Decreased in deaths since the practice of vaccination was introduced—at the Hospital, 1053; in the Parishes, 13,709.

Vaccination was introduced into practice at the Hospital for Inoculation, by Dr. Wm. Woodville, with the disease taken from the cows belonging to Thomas Harrison, esq. of Gray's Inn-road, on the 19th January, 1799. Six patients were vaccinated by the Doctor, in the presence of Sir J. Banks, bart. Sir W. Watson, Drs. Garthshore, George Pearson, Robert Willan, and several other medical gentlemen. The number

vaccinated from that date to the 1st of January, 1819, amounted to 43,394 at this Hospital.

J. C. WACHSEL, *Resident Surgeon.*

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### *High Operation for the Stone.*

[From the Medico-Chirurgical Journal, for January, 1819.]

There was lately performed, on a boy about 14 years of age, at St. George's Hospital, an operation for the stone, wherein the calculus was removed by an incision above the pubes. The steps of this process were, we understood, as follows:—The patient being secured in the usual manner, a sound was introduced into the bladder, and an incision was made into the membranous part of the urethra through the perinæum. A director was then introduced into the bladder, and the staff withdrawn. A kind of bistoire cachée, in the shape of a catheter, was next introduced along this director, and the latter removed. The bistoire being pushed up so as to press upon the upper part of the bladder, an incision was made in the linea alba, in the place where we puncture the bladder; but this incision was not carried right into the bladder, the cutting part of the bistoire cachée was pushed forward and made to come out at the wound in the linea alba. This wound was next enlarged downwards towards the pubes, by a bistoury, the point of which, we understand, was fixed into the groove of the bistoire cachée. The stone, it seems, was encysted, and Sir Everard Home was obliged to introduce his finger to free the calculus, which was removed by the forceps, though with some difficulty. The bistoire cachée being removed, a hollow gum catheter was introduced through the lower wound into the bladder, so that the water might drain off constantly, and prevent extravasation from the upper wound. The boy has had a remarkably good recovery, without any sinister accident.

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Mr. CURTIS, the Surgeon of the Royal Dispensary for Diseases of the Ear, has lately found gentle emetics highly serviceable in cases of incipient deafness in young children. *ib.*

*Bronchocele.*—Professor Walter, of the university of Landshut, has lately published, respecting the treatment of bronchocele, a pamphlet* which merits particular attention. He distinguishes the affection into four different species. In the first, which he names *aneurismal bronchocele*, the arteries, veins, and capillary vessels, are alike dilated. The second, or *lymphatic bronchocele*, seems to depend upon the effusion of coagulable lymph into the cellular structure of the thyroid gland. *Scirrhous* and *inflammatory bronchocele*, constitute the third and fourth divisions. Professor Walter's monograph is devoted exclusively to a consideration of the aneurismal species; and the following is one of the cases therein detailed:—A man, aged 24, had an enormous aneurismal bronchocele, which impeded both respiration and deglutition. The Professor made an incision one inch and a half in length, at the point where the left superior thyroideal artery was seen to pulsate. A second incision, cautiously practised, laid bare the vessel; and after several smaller arteries had been secured, a ligature was passed round it. At the expiration of a fortnight, the left portion of the tumour was reduced at least one-third in volume. The ligature of the opposite artery was accomplished on the 17th of June, but in consequence of the vessel being covered by the enlarged thyroid gland, the operation occupied three quarters of an hour. On the 15th of July the patient left the hospital. At that time he swallowed with facility; and the bronchocele, sensibly reduced, hung down in the form of an empty sac. Two years afterwards, the Professor learned that the subject of this operation had entered into the army.

The result of this experiment is certainly calculated to counteract the unfavourable impression left upon the minds of Surgeons by the failure of a similar attempt made some years since in one of the London hospitals†; and would doubtless justify its repetition in any instance where the bronchocele, by its pressure on the œsophagus or trachea, menaced fatal conse-

* Bulletin de la Société Médicale d'Emulation. Juillet, 1818.

† This case, if we mistake not, is mentioned in Mr. Hodgson's admirable Treatise on the Diseases of Arteries; but we are unable, at this moment, to refer to it. Lond. Edit.

quences. In the unfortunate case to which we have alluded, death took place from secondary hæmorrhage. We have no doubt that, if it were necessary, one or both of the inferior thyroideal arteries might also be tied by any Surgeon correctedly acquainted, as all Surgeons ought to be, with the relative anatomy of the parts upon which he was operating.

*Lond. Med. Rep. for January*, 1819.

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### *Geological Society of Connecticut.*

The legislature of Connecticut, at its present session, have incorporated a Geological Society, composed of the following gentlemen, viz. Col. George Gibbs, of New York; Professor Silliman, of Yale College, New-Haven, Conn.; Parker Cleavland, of Brunswick, Me.; J. Webster, of Boston; Robert Hare, of Philadelphia, and Robert Gilmore, jun. of Baltimore, and their associates. The objects of this society, as expressed in the act of incorporation, are—to encourage investigations into the Geology and Mineralogy of the United States, for the promotion of science, generally; and particularly in relation to the deposits of metals, mineral coal, salts, plaister, limestone, marble, and other useful and ornamental substances. Indeed, their views embrace the investigation of all the mineral kingdom, considering them all as either curious in science, or useful in art.—*New-York Daily Advertiser.*

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### *Morphia.*

[From the Annals of Philosophy, for February, 1819.]

An account of the original experiments of Sertürner on the infusion of opium, his method of extracting morphia and meconic acid from that infusion, and the subsequent trials of Robiquet and Vogel, have been already given in this journal. But no account has yet appeared in English of the results obtained by M. Franz Anton Choulant, though they have been pnblished at least a year ago in Gilbert's Annalen (lvi. 342).

As these experiments are the most minute, and probably the most precise that have been yet made, I shall in this and some of the following notices state the principal facts contained in his paper.

1. *Method of procuring Morphia.*—Four ounces of well-dried and pounded opium were digested in repeated quantities of cold distilled water till the liquid amounted to the quantity of about 16 English pints. This infusion was evaporated by a gentle heat on the sand bath, in a glass vessel, till it was reduced to eight ounces. The whole was then poured into a porcelain evaporating dish. After standing at rest for eight hours, in a temperature between 54° and 77°, six grains of small crystals were deposited, which possessed the properties of sulphat of lime. The whole, being evaporated to dryness, was redissolved in four ounces of distilled water, with the exception of a small quantity of brownish-coloured resin. Oxalate of ammonia being dropped into the solution, it became muddy, and a precipitate fell, which weighed, when dry, 3½ gr. After this precipitate had been separated, muriate of barytes was added, as long as it occasioned a precipitate. This last precipitate, being separated and dried, weighed two grains.

The solution was now diluted with eight pints of distilled water, and caustic ammonia poured in as long as any precipitate continued to fall. The precipitate thus obtained was white and flocky. After standing two hours, it became granular and brown. It weighed six drachms. It dissolved completely in eight ounces of distilled vinegar, and was precipitated by caustic ammonia without any alteration in its colour or its weight. Upon this precipitate, one ounce of sulphuric ether was poured; the mixture swelled up considerably. It was thrown upon a white paper filter. In the course of an hour and an half, a deep black liquid ran through, which weighed half an ounce. It had a strong ammoniacal smell, burned very readily, and left a bulky charcoal behind it.

The matter remaining upon the filter had a frothy appearance; but, when dry, it was in the state of a very fine powder, and had lost much of its dark colour. It now weighed 4⅔ drams. This powder was digested three times in caustic ammonia, and as often in alcohol. Both of these liquids acquired a dark-

brown colour, and left the *morphia* in the state of a brownish-white powder, reduced to the weight of three drachms.

This powder was dissolved in 12 ounces of boiling alchohol. The filtered solution being set aside for 18 hours, deposited colourless, transparent crystals, consisting of double pyramids. These crystals weighed 75 gr. and consisted of morphia in a state of purity. The alcoholic solution being evaporated to two ounces, deposited one drachm of morphia, similar to its state before its solution in the alchohol. When still further concentrated, 15 gr. of yellow-coloured morphia were obtained. The crystals of morphia thus obtained contained no traits of ammonia.

2. *Properties of Morphia.*—It crystallizes in double four-sided pyramids, whose bases are square, or rectangles. Sometimes in prisms with trapedoizal bases.

It dissolves in 82 times its weight of boiling water, and the solution on cooling deposits regular, colourless, transparent crystals.

It is soluble in 36 times its weight of boiling alcohol, and in 42 times its weight of cold alcohol of 92°.

It is soluble in eight times its weight of sulphuric ether.

All these solutions change the infusion of Brazil wood to violet, and the tincture of rhubarb to brown.

They have a bitter and peculiar astringent taste, and the saturated solutions of morphia in alcohol and ether, when rubbed upon the skin, leave a red mark.

The following are the salts of morphia examined by Choulant.

(1.)*Sulphate of Morphia.*—It crystallizes in prisms, dissolves in twice its weight of distilled water, and is composed of

| | | |
|---|---|---|
| Acid . . . . . | 22 . . . . | 5.00 |
| Morphia . . . . | 40 . . . . | 9.09 |
| Water . . . . | 38 | |
| | 100 | |

(2.) *Nitrate of Morphia.*—Needle form crystals deposited in stars. Soluble in 1½ times its weight of distilled water. Constituents,

| | | |
|---|---|---|
| Acid | 20 | 6.75 |
| Morphia | 36 | 12.15 |
| Water | 44 | |
| | 100 | |

(3.) *Muriate of Morphia.*—Feather-shaped crystals and needles. Soluble in 10½ times its weight of distilled water. Constituents,

| | | |
|---|---|---|
| Acid | 35 | 4.625 |
| Morphia | 41 | 5.132 |
| Water | 24 | |
| | 100 | |

(4.) *Acetate of Morphia.*—Crystallizes in needles. Soluble in its own weight of water. Constituents,

| | | |
|---|---|---|
| Acid | 36 | 6.375 |
| Morphia | 44 | 7.791 |
| Water | 20 | |
| | 100 | |

(5.) *Tartrate of Morphia.*—Crystallizes in prisms. Soluble in thrice its weight of water. Constituents,

| | | |
|---|---|---|
| Acid | 42 | 8.375 |
| Morphia | 36 | 7.178 |
| Water | 22 | |
| | 100 | |

(6.) *Carbonate of Morphia.*—Crystals short prisms. Soluble in four times its weight of water. Constituents,

| | | |
|---|---|---|
| Acid | 28 | 2.75 |
| Morphia | 22 | 2.16 |
| Water | 50 | |
| | 100 | |

*On the Equivalent Number of Morphia.*

From the numbers which I have annexed to the preceding analyses of Choulant, indicating the weight of the atoms of the acids, and the corresponding number for morphia, it is obvious that the analyses are very far from correct; for we obtain a pe-

culiar number for morphia from each salt. These numbers are as follows:

| | |
|---|---|
| From the sulphate . . . | 9.009 |
| nitrate . . . . | 12.150 |
| muriate . . . | 5.132 |
| acetate . . . | 7.791 |
| tartarate . . . | 7.178 |
| carbonate . . . | 2.160 |

The number from the carbonate differs so far from the rest that we must exclude it. It is obvious that the substance examined must either have been a mixture, or a subsalt. The mean deduced from the remaining five salts, gives us 8.268 for the weight of an atom of morphia. In the present state of the investigation, we may take 8.25 as an approximation to the weight of an atom of morphia; but in all probability it is not a very near one. Choulant's experiments must have been made upon too small a scale to expect accurate numerical results.

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### *Lunatic Hospital at Avignon.*

This hospital is under the management of the Lady Superior and twenty-five sisters of the Soeurs de la Charité; a director, his assistant, with two or three men-servants to clean the men's ward. Number of patients, one hundred; average dismissed cured, ten every year.

*Treatment.*—It is the principle of the director never to contradict a patient, but to appear to obey and execute his most extravagant wishes. The greater part of the patients enter this hospital with the strongest antipathies against some friend or public person; suspect a conspiracy against their lives or fortunes; and urge or plan the death or ruin of the persons exciting their resentment. The director patiently listens to their complaints, offers to execute their orders, how and when they please, and thus quickly gains an ascendancy over them. When their dress is worn out, he renews it, in form and colour precisely as they entered the hospital. They are allowed food at any hour they think proper, by night as well as by day. Plenty of water is always placed in their rooms.

One of the most difficult things is to induce them at first to keep their rooms clean. They are often apt to do every thing when it should not be. He gets the better of them by this easy management. There is a lad, nearly an ideot, that goes about the house and digs in the garden. When a room is dirty, immediately the director tells the patient, that he is sorry that the poor ideot has contrived, by the negligence of the director himself, to slip into the room and dirty it. He entreats the patient to watch well that the ideot does not return. He rates and scolds the poor boy; and this, repeated two or three times, almost always induces the patient to be cleanly.

Neither strait waistcoats, nor ropes, nor chains, are ever used. There is a long gallery, with a range of small rooms on one side, and of larger rooms opposite. An outrageous patient is merely confined in the small room, in which is a bedstead, chair, and table, all screwed to the floor, with a straw mattrass and blankets; no glass is in the windows, but iron bars, and outside Venetian blinds, that can be closed so as nearly to exclude the cold air, if necessary. When the patient is quiet, he is allowed to cross the gallery into the opposite room, while his own is cleaning out. When convalescent, the patients walk in an open gallery; in good weather in a garden, and attend regularly the chapel of the hospital.

"The great object we have always in view," said the Director, "is to keep the mind of the patient free from irritation, by giving him food whenever he chooses, and by appearing to obey his wishes against absent persons. We always urge, that his *bodily health* requires his remaining in our house.

"We never beat or threaten a patient, but impute, before him, any misbehaviour of his to another person. It was found difficult to get the women patients to cut their hair. As soon as we observe that they take notice of their own dress, we give them a small looking-glass, and, shortly after persuade them it is the fashion to cut the hair short, and wear a neat cap." Five of the sisterhood attend daily by rotation. Meat and soups are kept warm in the kitchen night and day. Small wine is allowed the patients in moderation. Little or no medi-

cine is used beyond common purgatives. A physician calls daily, but is not exclusively attached to the establishment.

The institution is supported by an estate belonging to the hospital, which escaped the confiscation under the Republican government.

The above information was communicated at Avignon, in December 1816. *Edin. Med. and Surg. Journal.*

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## THE PHILADELPHIA MEDICAL SOCIETY,

desirous of promoting the advancement of Medical Science, by obtaining and preserving accurate histories of the Epidemical Diseases of this Country, have authorized their Corresponding Secretaries, on behalf of the Society, to offer a GOLD MEDAL of the value of one hundred dollars, for the best dissertation on the History, Description, and most successful mode of Cure of the Epidemic, which has prevailed in various parts of the United States, for the last few years, commonly known by the name of TYPHUS or SPOTTED FEVER. The Essays must be written in the English or French language, and transmitted, under cover, sealed, to one of the Corresponding Secretaries, on or before the first day of January, 1820. The name of the Author must accompany each Essay in a separate sealed envelope.—The envelope containing the name of the successful Author shall alone be opened.—The Essays shall be at all times at the command of the Authors.

The Publication of the Essay to which the Medal shall be awarded shall be optional with the Society; but should it be published, the emoluments arising therefrom shall be secured to the Author.

Communications, post paid, may be directed either to

Dr. THOMAS T. HEWSON,
No. 132, Chesnut street, or
Dr. JOHN BARNES,
No. 203, Arch street,

*Corresponding Secretaries of the Philadelphia Medical Society.*

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*Obituary.*

Died, April 30th, 1819, Doctor JAMES P. FREEMAN, aged twenty-three years.

Died, at New York, on Saturday the 22d of May, 1819, in the 84th year of his age, HUGH WILLIAMSON, M. D. L. L. D. Fellow of the American Philosophical Society, of the Literary and Philosophical Society of New York, of the College of Physicians and Surgeons of the University of the State of New-York, of the Society of Arts and Sciences of Utrecht, &c. &c. In every situation of life, in which it was the fortune of this eminent individual to be placed, he was distinguished by undeviating integrity and honour. Called, at an early age, to take a part in our war of independence, he, for a considerable time, held a conspicuous rank in the medical department of the American army. He was appointed one of the delegates from the state of North-Carolina, in the Convention which formed the present constitution of the United States, and served as a member of congress both anterior and subsequent to that event. But high as was his political career, his services in the cause of literature and science are not less meritorious. Upon the first formation of the University of Pennsylvania, he acted as professor of mathematics in that institution; and, in conjunction with Rittenhouse, Ewing and Smith, was appointed by the American Philosophical Society of Philadelphia to observe the Transit of Venus in 1769. The account of their joint labours appears in the transactions of that learned society. He published many other papers, medical and philosophical, in the journals of different associations; and an account of his experiments on the Gymnotus electricus in the transactions of the Royal Society of London. But his literary and scientific reputation chiefly rests on his history of North-Carolina, and his essay on the climate of the United States, which last work alone is sufficient to transmit his name with renown to posterity. He was associated with the New-York Hospital, the Humane Society, and most of the other benevolent institutions of this city; and their records bear ample testimony to his disinterested zeal and unwearied exertions in behalf of humanity. He was deeply read in theological studies, and his researches resulted in an entire conviction of the truth of Christianity, and a practice of life conformable to its divine precepts. He has left to the world another example of the union of high attainments in philosophy with confidence in the Christian consolation. Long will his vir-

tues live in the memory of his friends, and deeply will his loss be felt by society.

A mere sketch of the character of the deceased is here attempted—a detailed account belongs to the biographer.

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The Trustees of the University of Pennsylvania, have elected Dr. PHILIP S. PHYSICK, Professor of Anatomy in that institution, in the place of Dr. DORSEY, deceased.

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## METEOROLOGICAL OBSERVATIONS.

STATE of the weather at Philadelphia during the first six months of 1819.

### JANUARY.

Thermometer—Lowest at 8 A. M. 19. 29th day of the month.
Highest at 3 P. M. 51. 19th, 27th and 28th
Mean, . . . . 35. days.

Southerly winds—slight snows.

### FEBRUARY.

Thermometer—Lowest, at 8 A. M. 22. 18th and 19th days of the month.
Highest, at 3 P. M. 60. 10th day.
Mean, 40.

South-westerly winds prevalent—Deep snows on the 12th and 26th—but little rain—a mild winter. River open and navigable the two last months—The winter has been uncommonly mild in Europe.

### MARCH.

Thermometer—Lowest, at 8 A. M. 21. 3d day of the month.
Highest, at 3 P. M. 66. 6th and 30th days.
Mean, 47.

Westerly winds most common—Several snows. An uncommonly cold month—Rain at different times—Heavy thunder and lightning on the 30th—Ice Islands met with in this month.

### APRIL.

Thermometer—Lowest, at 8 A. M. 34. 3d day of the month.
Highest at 3 P. M. 79. 14th day.
Mean, . . . . 55.

Winds variable—westerly predominant. Clear weather generally—Aurora borealis at Boston for several nights, the latter part of this month.

MAY.

Thermometer—Lowest, at 8 A. M. 50. 8th, 13th and 28th days of the month.
Highest, at 3 P. M. 82. 22d day.
Mean, . . . . 62.

Northerly winds—Several rains.

JUNE.

Thermometer—Lowest, at 8 A. M. 56. 2d day of the month.
Highest, at 3 P. M. 91. 9th day.
Mean, . . . . 75.

Much southerly wind—A warm month—and a very dry time—Clover crops good and well got in—Winter grain very promising—Cherries plentiful.

The season has been healthy—mild scarlatina continued to this month—little or no account of small pox—Inflammatory catarrh amongst children, and sore throats in adults have been prevalent in the spring months—several deaths this month from drinking cold water—and much alarm excited by the occurrence of some cases of Hydrophobia—In consequence of which, ordinances have been enacted by the City Councils, by the Boards of Commissioners of the Incorporated parts of the Northern Liberties and of Spring Garden, and by those of Southwark, for the destruction of all Dogs running at large in their respective limits.

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*College of Physicians of Philadelphia.*

JULY 6, 1819.

The following Officers of the College were duly elected.

*President.*—Doctor Thomas Parke.

*Vice President.*—Samuel P. Griffitts.

*Censors.*

Doctor William Currie, Henry Neill,
Thomas T. Hewson, Edwin A. Atlee.

*Treasurer.*—Doctor Thomas C. James.

*Secretary.*—Doctor John W. Moore.

*List of recent European Publications.*

Transactions of the Royal Society of London, for 1818. Pt. II. 4to.

Transactions of the Royal Society of Edinburgh. vol. VIII. Pt. II.

*Botany and Horticulture.*

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*Erratum.*

In page 262, line 19, of our last number, for *false wheat*, read *false rye*.